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ABSTRACT

The units contained in this guide are intended primarily as resource materials to assist grade 4 teachers in identifying units into which career awareness concepts can be infused and also in identifying instructional activities that correlate basic skills and career education objectives. Introductory information includes a definition of career education and an outline of goals for elementary career awareness. Fourteen units relate to social studies and cover map skills, regions of the United States (plains, mountain, coastal, and desert), careers in Delaware, the clothing industry, hospitality and recreational services, and communication and transportation. Six science-related units cover nutrition (two units), natural resources, environment, sound, and marine occupations. Each unit contains the following: An overview, content outline, unit objectives, and unit description, which provides criterion referenced objectives, learning activities, and a list of materials. Materials listed are teacher references, children's books, study prints, kits, films, filmstrips, records and songs, and classroom materials and equipment used in the activities. Additional evaluation suggestions are included for some units. A list of unit authors and their schools concludes the guide. (TA)

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ED142780

CAREER EDUCATION RESOURCE UNITS

GRADE: 4

April, 1976

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CAREER EDUCATION RESOURCE UNITS

Developed by:

Teachers of Newark School District
Newark, Delaware

and the

Career Education Instructional System

A K-12 Exemplary Project in Career Education
Conducted Under
Part D of Public Law 90-576

The project reported herein was performed pursuant to a grant from the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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FOREWORD

The career education resource units included in this guide have been developed and implemented by Newark School District teachers. These materials are intended to be utilized as resource materials. They can be adapted by existing curriculum, or they may be utilized as complete units.

Career education has rapidly become an educational priority at the national, state, and local levels. Hopefully these resource units will facilitate the integration of career concepts into the K-12 curriculum in a manner consistent with the educational needs of students.

Loren J. Thompson
Project Director

INTRODUCTION

A major thrust of the Career Education Program is to assist students in preparation for a meaningful and successful life of work. The scope of career education begins with educational experiences in early childhood and continues throughout an individuals lifetime.

Initial emphasis of a career education program provides for an awareness of the world of work and direct experiences to motivate the learner's interest. As a child moves through school he increases his familiarity with the world of work and investigates the many options available to him. He then acquires the knowledge and training necessary to obtain meaningful employment or enter a post secondary institution upon leaving school.

The units which appear in these Career Education Resource Volumes were deyeloped by elementary teachers in the Newark School District. The units are organized by grade level. A special volume entitled "Special Programs" has been assembled for programs appropriate for multi-grade activities.

The function of these units is to serve as a guide for teachers who are interested in adapting aspects of career education to their curriculum. They are intended to be utilized primarily as resource materials that can assist teachers in identifying units into which career concepts can be infused, and also in identifying instructional activities that correlate basic skill and career education objectives.

Components of each volume include introductory information which included the district definition of career education and career program goals, the instructional unit, and a listing of the teachers who developed the materials along with the school where the materials were field tested.

Rationale for Elementary Career Awareness:

The child in his early years is in the process of defining roles; family roles to enable him to differ between father and mother; community helper roles which help him identify the mailman, the grocer, the truck driver and so on. The Awareness Phase can capitalize on this natural process of job identification in children, and help develop a sense of the great number of job opportunities available to adults. The Awareness Phase provides a broad base of reference which the child can use to narrow his choices of career possibilities and follow those choices in greater depth during his adolescent life.

Responsible attitudes toward work must be cultivated during the formative stages of development; the early years of a child's school life. His feelings toward himself and others, his dependability, his perseverance, his promptness, and the other fundamental building blocks of his character are formed during this early period. No matter what job the child eventually chooses, these positive attitudes will help assure success.

Occupational aspirations and positive work attitudes are important aspects of an Awareness Program, but they are of little real value without the basic skills of communication and computation, and the ability to think clearly. Since these basic skills are presently a fundamental part of an elementary school program, the Awareness Phase of career education begun at this level, will help knit these basic components together to give each child a first step on the way to a meaningful and satisfying career pursuit.

Definition of Career Education:

Career education is a comprehensive educational goal designed to provide all youth the opportunity for career awareness and the opportunity to attain skills necessary to achieve economic independence and an appreciation of the dignity of work.

Goals for Elementary Career Awareness:

GOAL 1: TO DEVELOP IN PUPILS POSITIVE ATTITUDES ABOUT THE PERSONAL AND SOCIAL SIGNIFICANCE OF WORK.

SUB GOALS: To develop in pupils an awareness that:

1. People need to work to preserve and advance society.
2. People work for rewards and satisfaction.
3. There are rules for all kinds of work.
4. All kinds of work are interdependent and should benefit society.
5. Attitudes and personality factors have an effect on work, performance, and success.
6. All work has dignity and is worthwhile.
7. All work involves the production of either goods or services.

GOAL 2: TO DEVELOP EACH PUPIL'S SELF-AWARENESS.

SUB GOALS: To develop in pupils an awareness that:

1. All people have dignity and are worthwhile.

2. People have differing abilities, values, attitudes, and interests; and occupations differ in their requirements and prospects.

3. Understanding and accepting oneself is a continuing developmental process which is influenced by experiences throughout life.

4. Each person assumes several different roles in relation to the people and situations with which he comes in contact.

GOAL 3: TO DEVELOP AND EXPAND THE OCCUPATIONAL AWARENESS AND OCCUPATIONAL ASPIRATIONS OF THE PUPILS.

SUB GOALS: To develop in pupils an awareness that:

1. All kinds of work need some skill or training.

2. All people can and should contribute their talents and capabilities to the world of work.

3. People should adapt to technological and sociological changes which create or eliminate work.

4. Environmental and cultural factors determine the kinds of work available.

5. Man's work affects his way of life.

GOAL 4: TO IMPROVE OVERALL PUPIL PERFORMANCE BY UNIFYING AND FOCUSING BASIC SUBJECTS AROUND A CAREER DEVELOPMENT THEME.

SUB GOALS: To develop in pupils an awareness that:

1. All kinds of work need basic skills and training.

2. Skills developed through basic subject materials can lead to an enjoyment of both work and leisure activities.

3. Acquisition of fundamental competencies is necessary for future skill development.

4. Communication skills developed through basic subjects can lead to better interaction and job understanding.

5. Successful learning experiences in basic subject areas are fundamental to achieveing career interests and making adequate decisions.

6. Variety in depth and types of skill development effects interdependency among people.

SOCIAL STUDIES

Unit Title: MAP SKILLS

I. Unit Overview: Maps serve as a valuable source of information about places. The ability to read maps and to interpret the factual information which they contain requires mastery of skills. This unit has been specifically designed to develop these necessary skills.

II. Unit Content Outline:

A. Earth as a Globe
   1. Globe is more accurate than flat map.
   2. Hemispheres
      a. Definition
      b. Two we live in
         --Northern
         --Western
      c. Eastern, Southern
   3. Compares a picture of the earth with a picture of a globe.

B. Directions
   1. Cardinal Directions
      a. North
      b. South
      c. East
      d. West
   2. Intermediate directions
      a. N.W.
      b. S.W.
      c. N.E.
      d. S.E.
   3. Understand use of compass for directions.

C. Map Representation
   1. Two basic types of maps
      a. Physical
      b. Political
   2. How to read a map
      a. Read a variety of special purpose maps.
      b. Draw inferences on basis of data obtained from them.
   3. Noting how symbols may vary on different maps.

D. Interpreting Maps
   1. Interpret map symbols and color and visualize what they mean.
   2. Note differences in topography.
   3. Locate places on maps and globes.
   4. Draw inferences by comparing different map patterns of the same area.

E. Land and Water Masses
   1. Land Masses - Continents
      a. List of seven continents.
      b. Continents are divided into smaller parts called countries.
   2. Water Masses - Oceans

F. Geographic Terms:

canal	longitude	topography
continent	mouth	global grid
delta	river	gulf
desert	sea	harbor
downstream	source	peninsula
island	tide	plain
lake	tributary	plateau
land elevation	upstream	natural resources
latitude	valley	

G. Imaginary Areas of Earth's Surfaces
   1. North Pole
   2. South Pole
   3. Equator
   4. Arctic Circle
   5. Antarctic Circle
   6. Tropic of Cancer
   7. Tropic of Capricorn
   8. Grid Lines
      a. latitude or parallels
      b. longitude or meridians
      c. prime meridian
      d. international dateline
   9. Time Zones

III. Unit Objectives: The student will be able to:

1. Explain the difference in use between maps and globes.
2. Be able to define map terms and where appropriate locate them on a map.
3. Name the direction you travel from one given location to another on a map and globe.
4. Label directions on a directional rose.
5. Be able to read and interpret maps for specific purposes.
6. Design kinds of maps to fulfill variety of purposes.
7. Locate positions on a globe. (e.g. oceans, continents, gulf, North Pole, etc.)
8. Locate positions on a map using the grid system.
9. Find time zone regions and determine their location.
10. Identify those occupations which do and do not use map skills in the performance of their jobs.

IV. Unit Description:

Unit Objective #1: The student will be able to explain the difference in use between maps and globes.

A. Criterion-Referenced Objective:
   1. The student will be able to write a paragraph stating at least three differences between maps and globes.

B. Learning Activities:
   1. Knowledge will be gained through discussion and working in groups and with teachers, comparing and contrasting globes and maps.

Unit Objective #2: The student will be able to define map terms and where appropriate to locate them on a map.

A. Criterion-Referenced Objective:
   1. Given a list of map terms the student will be able to define them and where appropriate to locate them on a map.

B. Learning Activities:
   1. The student will record each geographic term as it is studied with its definition.
   2. Play "Concentration" using words and definitions learned.
   3. The student gives a definition or explains the meaning of one of the words in a vocabulary list and calls on another student to pronounce and give word defined.

Unit Objective #3: The student will be able to name the direction you travel from one given location to another on a map and globe.

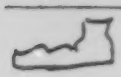
A. Criterion-Referenced Objectives:
   1. The student will acquire an ability to describe the location of a place by distance and direction from a reference point.
   2. The student will develop an ability to find a place on a map, given a description of its location by distance and direction from a reference point.

B. Learning Activities:
   1. Divide the class into two groups. Have each group plan a walk for the other group. (Example: Begin at the classroom door - walk six steps north - three south - eleven east, etc.)
   2. Follow directions on the map of the City Zoo.
   3. In the classroom try to establish the approximate direction N, S, E, W on your walls. Place a sign on each.
   4. Use graph paper posted on cardboard to make the game board. Make a set of playing cards, each card stating a direction to move such as one square north. To play everyone starts in the middle. In turn each child draws a card and follows the directions. The first to reach any edge of the board wins.

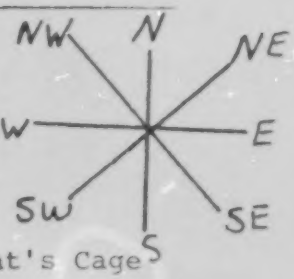
Unit Objective #4: The student will be able to label directions on the directional rose.

A. Criterion-Referenced Objective:
   1. Given a directional rose and a list of eight directions and abbreviations the student will be able to correctly label the directional rose.

NAME _____ DATE _____

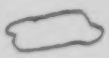

Tiger's Den

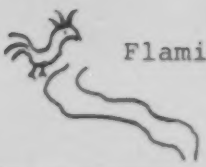
Lion's Lair



Bear's Cage

Monkey's Cage

Snake Pit 


Flamingo Lane

Elephant's Cage

Complete the following using these:

N E NE SE

S W NW SW

In what direction would you travel from:

1. The Bear's cage to the Snake pit? _____
2. The Snake pit to the Tiger's den? _____
3. The Elephant's cage to the Monkey's cage? _____
4. The Lion's lair to Flamingo Lane? _____
5. The Snake pit to the Monkey's cage? _____
6. The Tiger's den to the Bear's cage? _____
7. The Tiger's den to Flamingo Lane? _____
8. The Snake pit to Flamingo Lane? _____
9. The Monkey's cage to the Lion's lair? _____
10. The Lion's lair to the Bear's cage? _____

Unit Objective #5: The student will be able to read and interpret maps for a specific purpose.

A. Criterion-Referenced Objectives:
1. Given an unlabeled map and a list of eight topographical terms the student will be able to correctly label the map.
2. Given a map of the United States the student will trace a river system from its source to its mouth and locate its tributaries.
3. Given a road map and a specific interstate highway the student will be able to list major cities and states through which it passes.
4. Given an unlabeled map and a list of eight physical features the student will be able to correctly label the map.
5. Given an unlabeled map and a list of eight cultural features the student will be able to correctly label the map.
6. Given a list of ten words the student will be able to draw symbols for those words that would be found in a map legend.
7. Given a map the student will be able to estimate and compute the distance between two given points using a map scale.
8. Given a map (e.g. products, population, rainfall) and a set of questions about that map the student should be able to answer them correctly.

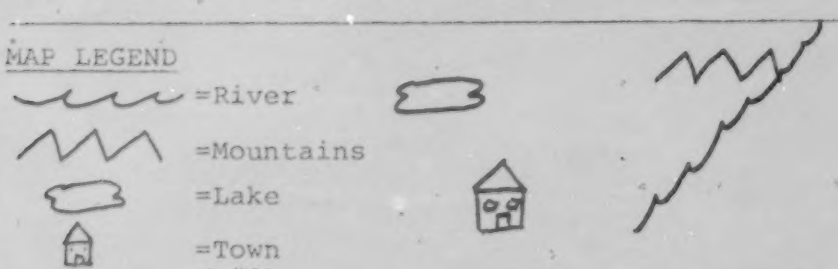
B. Learning Activities:
1. Given a map the student will find and trace the following rivers from its sources to its mouth:
   a. Mississippi — Delaware
      Ohio — Columbia
      Missouri — Colorado
   b. The Great Lakes
2. Through how many states does the Colorado River flow?
3. Choose a highway map and have student use map to list the major cities and states through which it passes.
4. Keep a vocabulary booklet on geographic terms:

lake	plain	isthmus
river	island	gulf
river source	river mouth	strait
ocean	shore	delta
sea	bay	tributary
mountain	desert	glacier
hill	peninsula	spit
valley	swamp	

5. Draw symbols to represent cultural features on a map:

church	factory	railroad track
road	restaurant	signs
bridge	house	mines
shopping center	tunnel	

6. "Where Am I Going?" A student driver sits in front of the class and tells the class where he is driving. He may say, "I am going west on route 10 out of Salt Lake City." He can make as many turns as he wants and the first classmate to guess his destination then becomes the driver.
7. Choose a city (e.g. Philadelphia, Baltimore). Have student plan route to Newark.
8. Have each child plan a motor trip. He can lay out his route on maps. Plan where to stop and figure mileage and expenses.
9. Sketch, on chalkboard or use a transparency, a map with topographical features such as mountain range, bay, gulf, plain, peninsula, tributary, delta, and strait. Locate and list a definition of each. Student will then make own map and label it.
10. Make a set of task cards with questions using information found on the map. Student uses a road map to find the answers and record them in a travel booklet. (e.g. Begin in Canada.)
11. Make an outline map of the world of key countries to show different colors. Give each student a map. One half of the class should color all countries of key. The other half would act much like an assembly line. Each student should color only <u>one</u> country and pass to another student to color his country, etc. until completed. Compare different methods of working. Relate to living in a community.
12. Give students an outline map of school to label using appropriate symbols. (ex. music room)
13. Add symbols to Diagram.



14. Draw a symbol for the following:

mountain	school	city
bridge	river	capital city
church	state boundary	national capital
railroad	international boundary	

15. "Spin the Miles" - Write the names of cities on spinners (eastern). Write names of cities on spinner (western). Student will spin both wheels and measure distance between the cities as shown on a national or state map. Record cities and distance. This activity may also be played as a game.

16. Obtain several road maps of a community. Have students shade in distinct areas. (e.g. industrial, commercial, residential) in different colors. Mark major types of transportation (auto, bus, rail) routes in different colors and prepare an appropriate key or legend.
17. The student will read and interpret maps. Discussion and written exercises will follow.
18. Prepare a map of Newark. Write ten locations on ten slips of paper. Have two teams of three players each. Each team will get five slips of paper and five map pins. The first team to locate all places accurately wins.

Unit Objective #6: The student will be able to design kinds of maps to fulfill a variety of purposes.

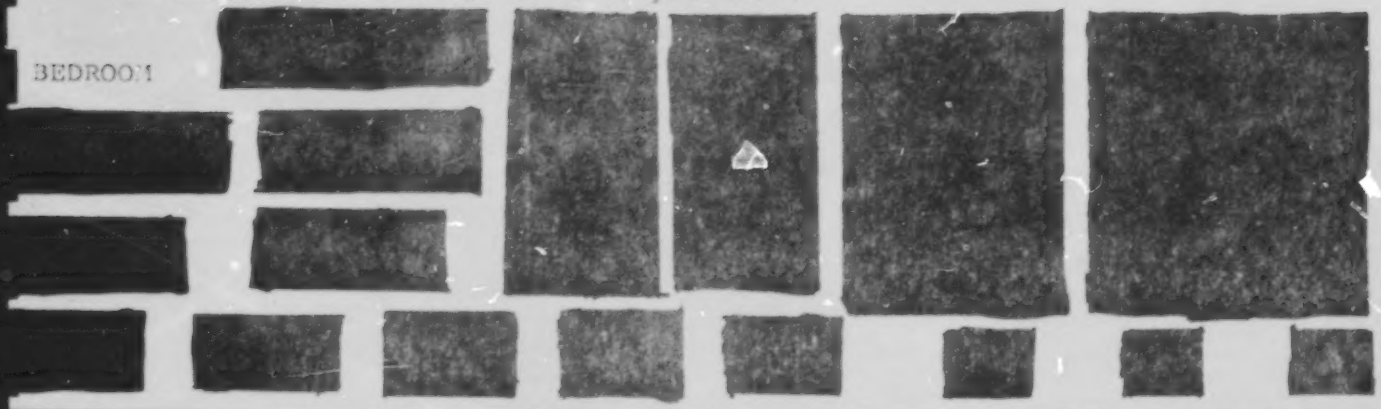
A. Criterion-Referenced Objectives:
   1. Given a task card (e.g. product map) the student will use knowledge gained in map study to construct from data compiled the necessary map.

B. Learning Activities:
   1. Provide a blank map of Delaware. The student should be able to show boundary lines, directional rose, bodies of water, capital city. Make legend including symbols for state boundary lines, capital, water, land, important cities.
   2. Make a set of cards with the names of maps that might be included in an atlas. A student picks a card and makes that map to add to the atlas. (Ex. Atlas needs: products map of Mexico, Population map of California).
   3. Prepare a list of map symbols on the blackboard and have children make a map of an imaginary community.
   4. Draw a map of an imaginary land or country. Include a map key.
   5. Make a map of your own city.
   6. Draw a map of a neighborhood using a map key.
   7. Draw a floor plan of your home.
   8. Visit a nearby stream. Draw a map showing:
      a. What direction is the water flowing?
      b. Which way is downstream? Upstream?
      c. Which way is current moving? (use ping pong ball, stick to determine)
      d. Which way travel to source? Mouth?
      e. Use compass for directional rose.
      f. Make key - Label map.
   9. Draw floor plan of building (e.g. house, school office). Construct scale model of furniture for plan. See attached sheet of cut-out templates.
   10. The student will make topographical maps. See attached sheets for directions.

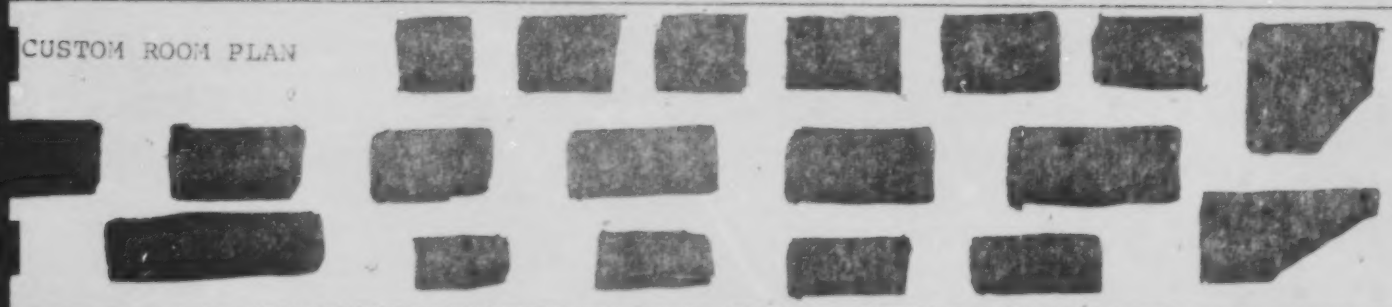
CUT-OUT TEMPLATES

Use these templates and symbols to plan your own rooms. Cut out the templates you need and fit them into your room plan on the graph on the following pages. Move them around to achieve the decorative and storage results you need.

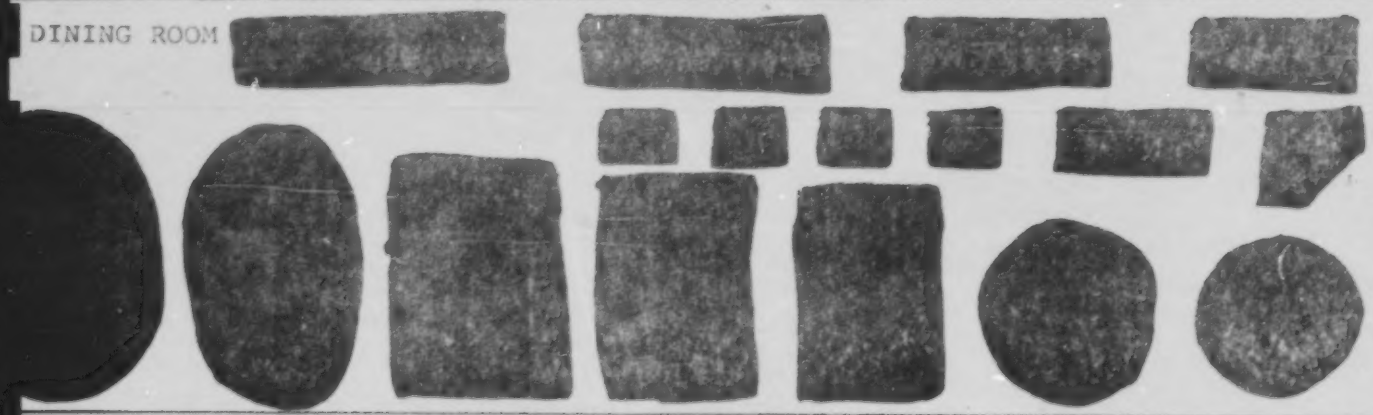
BEDROOM



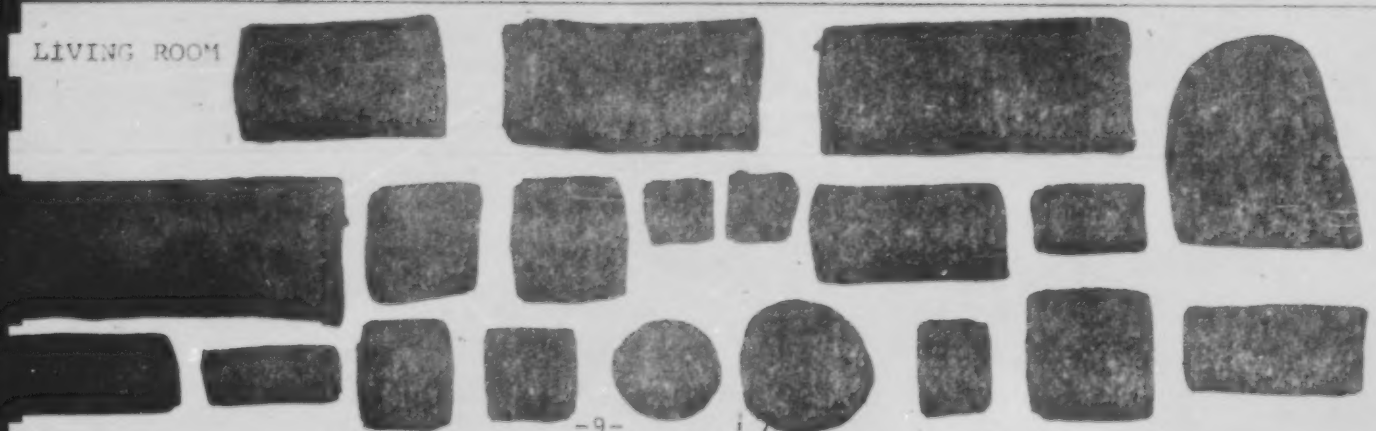
CUSTOM ROOM PLAN



DINING ROOM



LIVING ROOM



11. Make a salt map:

1. Each student will bring 1 lb. box salt and sturdy construction paper 8" x 10".
2. Make copies of map on unlined paper.
3. Draw shape on construction paper.
4. Mix 3 cups salt with 1 cup flour and water (good for 3 maps).
5. Shape map on cardboard adding clay for mountains and carving for lakes and rivers.
6. Paint using: blue - water
   green - land
   brown - mountains
7. Label map using criteria.

Soap flake modeling:
2 cups soapflakes (Lux or Ivory)
Food Coloring
Enough water to moisten
Egg beater

Directions: Whip soapflakes, water and food coloring until it reaches a molding consistency. This "clay" dries slowly and can be used for modeling objects or adding a 3-D effect to pictures or paintings.

Unit Objective #7: The student will be able to locate positions on a globe (e.g. oceans, continents, gulfs, North Pole).

A. Criterion-Referenced Objectives:
1. Given an outline map of the world the student will be able to locate and label continents, oceans, North Pole, South Pole, equator, Arctic Circle, Antarctic Circle, Tropic of Cancer, and Tropic of Capricorn.

B. Learning Activities:
1. The student will label a map of the world (e.g. continents, oceans, equator)
2. Play a game called "Location". A child presents three clues about a continent. Those who respond must identify the continent correctly and locate it on the classroom map.

Unit Objective #8: The student will be able to locate positions on a map using the grid system.

A. Criterion-Referenced Objectives:
1. Given a map and a teacher made coordinate system the student will label correctly the given points.
2. Given a map a teacher made coordinate system and given points the student will be able to name the specific places.
3. Given a picture the student will enlarge its outline using grid lines.

NAME MAP

STATES

Your salt map should have:

1. The shape of the state
2. Mountains
3. Any large rivers and lakes
4. Capital city
5. A Directional Rose
6. A legend
   a. symbol for capital city
   b. symbol for rivers
   c. color code for water, land and mountains
7. Name of the State
8. Your map must be neat and legible

NAME MAP

CONTINENTS OR COUNTRIES

Your salt map should have:

1. The shape of the continent or country
2. Mountains
3. Large rivers
4. Names of oceans that border your area
5. A Directional Rose
6. A legend
   a. symbol for rivers
   b. color codes for water, land and mountains
7. Name of continent or country
8. Your map must be neat and legible

B. Learning Activities:

1. Divide class into two teams using the class globe or wall map of the world. Have one team list ten or more cities or countries north of the zero degree line and the other team list the same number of cities or countries south of the zero degree line. After the teams exchange lists give them the same amount of time to write the approximate latitude opposite the names on its list. The team with the most correct answers wins.
2. Game: To practice the distance and direction of a given place from a central point - divide the class into teams of four or five students each. Select ten places and call the names of each place. As the teams find the pair of numbers which describe the location; note which team first completes the measurements, and give this team two points. Reverse procedure giving place and have teams give measurements. (Latitude & Longitude)
3. Have the students draw buried treasure maps with latitude and longitude systems on them. Each student should then write instructions for finding the treasures location using latitude and longitude and directions (N, S, E, W).
4. Have students play "Battleship".
5. Have students make up their own game using latitude and longitude.
6. Using the grid system and map of Delaware locate these positions on the map:

   B,2 E,12 E,2 G,11
   F,6 D,7 C,3
7. Enlarge a simple outline object by use of grid lines.
8. Given an outline map and sheet with coordinates (see attached sheets) locate coordinates, color in section with appropriate crayon, and write the name of the continent located.
9. Provide worksheet and have student label coordinates as they are dictated. (see attached sheets)

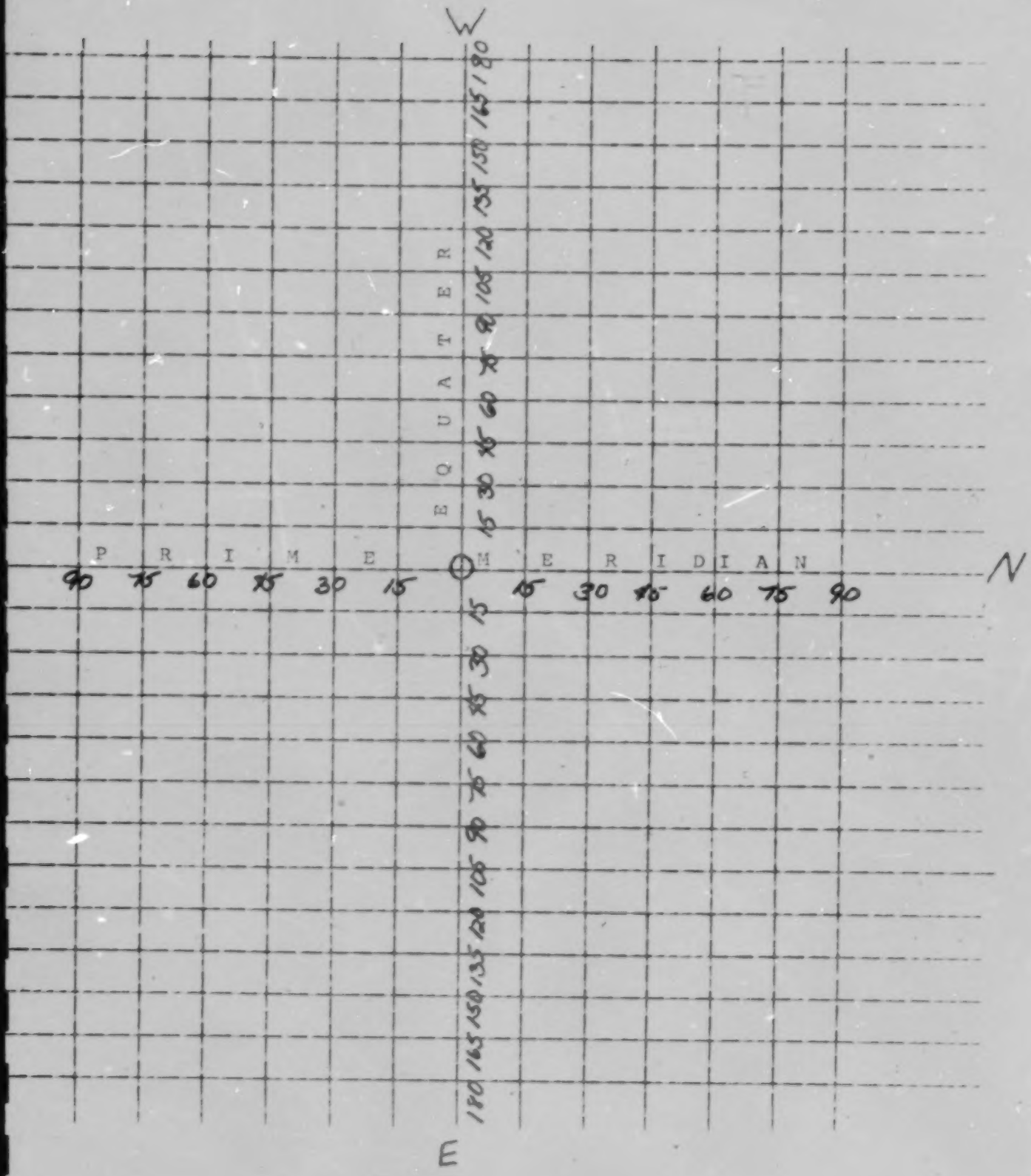
Unit Objective #9: The student will be able to find time zone regions and determine their locations.

A. Criterion-Referenced Objectives:

1. Given a map the student will be able to assign clock times to places of known time zone location.

B. Learning Activities:

1. Make a set of six circles about 12" in diameter. Number each as a clock having hour and minute hands. Have a large map of the U. S. Attach strips of paper to show each time zone. Have student choose a city and turn clock under the city to the time wanted. Have other students turn clocks to correct time.
2. Game: "What Time is it?" Select a pupil to start by saying, "I'm in the Central Time Zone and it's 9 o'clock in the morning. What time is it in the Pacific Time Zone?"


W
EQUATER
PRIME MERIDIAN
0
15
30
45
60
75
90
105
120
135
150
165
180
N
E

NAME _____

LATITUDE AND LONGITUDE

1. RED CRAYON

E. 30°	N. 15°
E. 15°	N. 15°
E. 15°	S. 15°
E. 30°	S. 15°

_____

2. BLUE CRAYON

E. 45°	N. 45°
E. 60°	N. 60°
E. 75°	N. 45°
E. 90°	N. 60°

_____

3. GREEN CRAYON

E. 120°	S. 30°
E. 150°	S. 30°
E. 135°	S. 15°
E. 135°	S. 30°

_____

4. BLACK CRAYON

W. 60°	S. 0°
W. 75°	S. 0°
W. 75°	S. 15°
W. 60°	S. 15°

_____

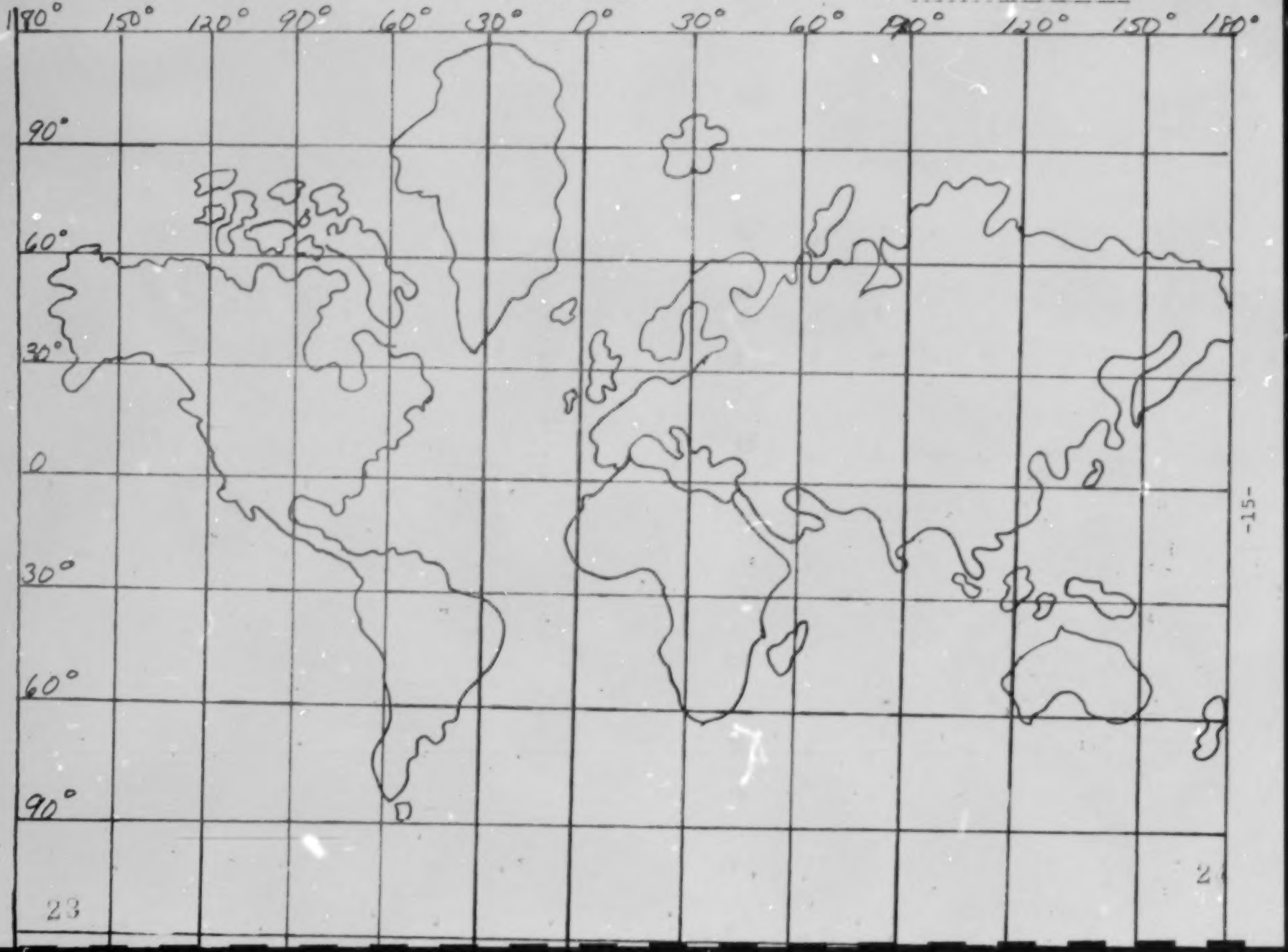
5. PURPLE CRAYON

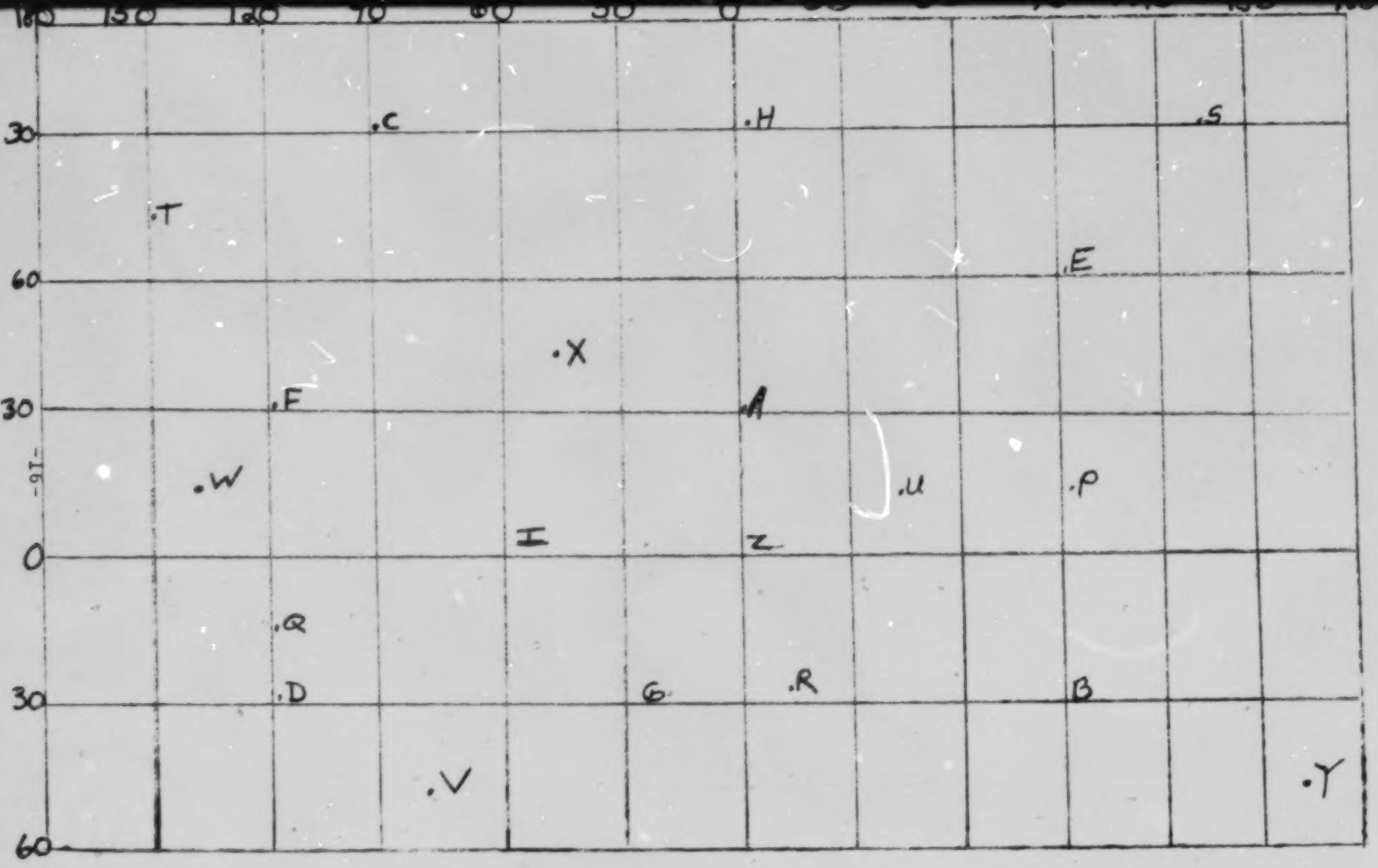
W. 120°	N. 45°
W. 105°	N. 60°
W. 90°	N. 30°
W. 75°	N. 45°

_____

THE WORLD

NAME _____





NAME _____

WORLD MAP

NAME _____

DATE _____

MAP SKILLS

Unit Objective #10: The student will be able to identify those occupations which do and do not use map skills in the performance of their jobs.

A. Criterion-Referenced Objectives:
   1. Given a list of ten occupations the student will be able to underline the five occupations that require knowledge of map skills.

B. Learning Activities:
   1. List jobs which do and do not require map skills in the course of the performance of their occupations. Discuss why map skills are important to the people who need them. Provide construction paper to be divided into eight sections. In each section the student is to draw and label a person in the performance of a job requiring map skills.

C. Materials:
   1. Map
      a. Thompson, Dr. Allan M. & Woodruff, Kenneth D., Geologic Map of Newark Area; Delaware Geological Survey Office, University of Delaware, Penny Hall, Copyright: June, 1975.
   2. Transparencies
      a. Annual Precipitation #912.73 - Nystrom, Chicago, 1969.
      b. Average Temperature #912.73 - Nystrom, Chicago, 1969.
      c. Climates #912.73 - Nystrom, Chicago, 1969.
      d. Drainage Basin #912.73 - Nystrom, Chicago, 1969.
      e. Fuel and Power - U. S. #912,73 - Nystrom, Chicago, 1969.
      f. Geographic Concepts #910 - Follet Educational Corp., 1968.
         1. #76- Arctic Circle, etc.
         2. #40- Arid; desert
         3. #52- Cape
         4. #51- Cove, inlet
         5. #63- Delta
         6. #81- Direct ray
         7. #53- Drowned river valley
         8. #56- Elevation
         9. #1 - Globe
         10. #31- Grand Bank
         11. #67- Great basin
         12. #80- Great circle route
         13. #13- Hill; mountains
         14. #42- Humid
         15. #79- Island chains
         16. #74- Isthmus
         17. #19- Lake, river
         18. #5 - Map projection
         19. #54- Megalopolis
         20. #49- Mountain range

21. #35- Natural region
22. #34- Natural resources
23. #17 Ocean; sea; bay; gulf
24. #43- Parallels of latitude
25. #44- Peninsula
26. #46- Piedmont
27. #11- Plains
28. #12- Plateau
29. #27- Polar region
30. #8 & #36- Political map
31. #10- Population
32. #82- Rain forest
33. #33- Rapids
34. #28- Region of Changing Temperature
35. #9 - Relief map
36. #25- Revolution
37. #24- Rotation
38. #7 - Scale of miles
39. #38- Sea level
40. #73- Sound
41. #47- Source; mouth
42. #32- Strait
43. #82- Temperature zone
44. #18- Tides
45. #57- Tributary; drainage basin
46. #26- Tropical region
47. #39- Young mountains; old mountains

g. Major Land Forms of U.S. #912.73 - Nystrom, Chicago,1969.
h. Metals #912.73 - Nystrom, Chicago, 1969.
i. Natural Vegetation of U. S. #912.73 - Nystrom, Chicago, 1969.
j. Physiographic Divisions - U. S. #912.73 - Nystrom, Chicago, 1969.
k. U. S. Outline Map Without Streams, #912.73 - Nystrom, Chicago, 1969.
l. U. S. Time Zones #529.7 - 3M, 1966.
m. Predominant Economics - U.S. #912.73 - Nystrom, Chicago, 1969.

3. Study Prints
   a. Where are the Arid Lands? #551.6 - Coronet Films, Chicago, 1970.
   b. Where are Cold Lands? #551.5 - Coronet Films, Chicago, 1970.
   c. Where are the Temperate Lands? #551.6 - Coronet Films, Chicago, 1970.
   d. Where are the Tropical Lands? #551.6 - Coronet Films, Chicago, 1970.

4. Books
   a. Cobb, Vickie - Sense of Direction #526.8 - Parents, 1972.
   b. Bowen, Ezra - The Middle Atlantic States #917.51 - Time-Life Books, 1967.

Unit Title: REGIONS OF THE U.S.

I. Unit Overview: This unit is based on the geography of the U.S. It deals with the interrelationship and dependence of man upon his environment. It describes the natural setting and physical environment of the regions of the U.S. such as the topography of the earth, soil, rocks, minerals, climate, land and water bodies, and native plant and animal life. It also deals with the cultural elements such as man's occupation, types of communities, his means of transportation and communication, and other elements resulting from man's efforts to utilize the materials of his physical environment.

The activities in this unit were selected to supplement and enrich this unit. We will be using the text, In These United States published by D. C. Heath and Co. as our main source of information and teaching tool.

II. Unit Content Outline:

A. Natural Resources of United States
   1. Identify
   2. Supply, depend and dependence
   3. Changes natural resources undergo
   4. Development

B. Northeast Region
   1. New England States
      a. Characteristics of land
      b. Utilization of land
         --agriculture
         --manufacturing
   2. Mid-Atlantic States
      a. Characteristics of land
      b. Utilization of land
         --seaports
         --factories
         --farming

C. North Central and Southern Regions
   1. North Central States
      a. Characteristics of land
      b. Utilization of land
         --Cotton
         --Cattle
         --Underground resources
         --Lumber industry
         --Manufacturing

D. Western Region
   1. Mountain States
      a. Characteristics of land
      b. Utilization of land
         --cattle
         --mining
         --irrigation

2. Pacific States
   a. Characteristics of land
   b. Utilization of land
      --irrigation
      --lumber
      --fishing
      --wheat
      --minerals
      --farming

III. Unit Objectives: The student will be able to:

1. Identify the basic natural resources as air, water, soil, rocks, minerals, plants and animals.
2. Recognize the fact that natural things are in limited supply and must be used carefully.
3. Recognize change as a natural process and understand that it is caused by conditions that surround the natural item.
4. Be aware of the fact that all man-made things are still natural resources that have been changed in a way that is not a natural process.
5. Recognize the interrelationship and the importance of natural resources to living organisms.
6. Understand the importance of natural processes such as decomposition to the eventual renewal of natural resources.
7. Develop an awareness of the types and manner in which different regions develop their natural resources with an accent on occupations.
8. The student will acquire a knowledge of the physical characteristics of the regions of the U.S.
9. The student will understand man's utilization of natural resources.
10. The student will be able to speculate on the changes future technological advances may make in the way we work and live.

IV. Unit Description:

Unit Objective #1: The student will be able to identify the basic natural resources as air, water, soil, rocks, minerals, plants, animals.

A. Criterion-Referenced Objectives:
   1. Given the opportunity to define the word resource, the children will demonstrate an awareness of the fact that a resource is anything that has human utility or value.
   2. Given the opportunity to define the term, natural resource, children will demonstrate their knowledge of the fact that natural resources are those things that occur naturally and are used to sustain life.

B. Learning Activities:

1. List things in your community next to the natural resource that was used to make them.

What we make from:

Air	
Water	
Soil	
Plants	
Animals	
Minerals	
Land	
Space	

2. Make a silent book. Use one side of the page. Draw pictures of things of nature that are silent. Flip book over. Draw things of nature that are not silent.

Unit Objective #2: Recognize the importance that natural things are in limited supply and must be used carefully.

A. Criterion-Referenced Objectives:

1. The student will be able to write a paragraph on each of the two resources such as water, electric power, forests, oil, etc. explaining why diminishing of these resources limits satisfaction of our wants in the production of goods involving their use.
2. Given the opportunity to observe their community for the purpose of determining areas where things were being used unwisely, children will be able to demonstrate their understanding by the things they select.

B. Learning Activities:

1. Have the children consider the following situation: You have been sent to the store by your mom to buy the following things: milk, cola, washing powder, candy bars, plastic plates and cups, and enough hot dogs for ten people.

Propose questions such as:

a. Milk comes in paper, plastic and glass containers. From the natural resources point of view which would be the best one to buy?
b. Cola comes in glass bottles that are returnable glass bottles that are nonreturnable and aluminum cans. Which is the best environmental buy?
c. Washing powder comes in many varieties, some of which do a very good job cleaning our clothes but pollute the streams while others don't get our clothes as clean but don't pollute the stream. Which sould we buy?

d. Candy bars come wrapped in paper, plastic and tin foil, which should you buy?
e. Plastic cups and plates come in plastic and paper. Which should you buy?
f. Hot dogs come in packages of 12. You have 10 people that want 2 hot dogs each, should you buy 1 package and have 2 people get 1 hot dog or should you buy 2 packages and have 4 hot dogs left over?

2. Draw, act out, or describe a hypothetical situation in which resources have been badly managed.
3. Complete the activity on the worksheet attached, "Recycle Your Own Paper".
4. List the things you and your family could do to conserve water. Read your water meter and record the amount used each day and make a graph of the results. Remember, the meter records cu. ft. see if you can use the following facts to help you change cu. ft. to gallons: 1,728 cu. ft. = 1 cu. ft.; 231 cu. in. = 1 gal.

   Compare your findings with a classmate. See if you can think of reasons for the difference in number of gallons used.

   Interesting facts:
   --Total amount of water used per person per day is 1,800 gal.
   --300 gal. make 1 gal. of beer
   --10 gal. refine 1 gal. of gasoline
   --250 tons make 1 ton of wood pulp
   --38 gal. make 1 slice of bread
   --325,800 gal. to raise 1 acre of alfalfa
   --600-1,000 tons for each ton of coal burned in a steam power plant.
5. Talk to a service station manager on the subject of how the gasoline shortage has affected his station and his income. Ask your parents how this shortage affected them.
6. Interview a supermarket manager about how rumors of shortages of paper products affected his store. Report to class. Write to Scott Paper Co. in Philadelphia asking for this information.
7. More and more toys are being made of plastics. Previously these were made of wood. Do they last long now? Ask your parents to help. You might write to one of the big lumber product companies such as Weyer Houser and ask why wood is not being used as much in toys.
8. Select one of the following and show how the event could effect satisfaction of a need or want:
   a. pollution results in fish kill of Delaware Bay
   b. brown out in Delaware Valley
   c. iron ore workers on strike
   d. accidents close coal mines
   e. rubber plant attacked by new virus
   f. 200,00 acres of California forest destroyed by fire

9. As a homework assignment have children look for on their way to and from school five things they feel are not being used wisely. Remind children they may consider both natural and man made resources because man made resources are made from natural resources. Suggestions follow:

   Urban: Parks and play grounds with litter
   Junk cars on street
   Cars going by with few people in them
   Words on buildings and walls
   Man power not being used

   Rural: Poor use of soil
   Use of rivers and streams for dumping sewage
   Fields taken over by weeds
   Plants being destroyed by insects

   Both: Poor decisions in the use of time, money, paper, cars, food and water and soil.

   Discuss why these things are being done and possible solutions.

10. Make a water filter: Place a plug of cotton in the hole of a flower pot. Add layers of sand and charcoal. Pour muddy water into the pot allowing it to drain into a glass jar. Discuss what happens.
11. Assign small groups of students to find out what steps are involved in the recycling of glass, aluminum, steel and rubber. Arrange bulletin board displays using pie-shaped designs showing steps used.

Unit Objective #3: Recognize change as a natural process and understand that it is caused by conditions that surround the natural item.

A. Criterion-Referenced Objective: Given the opportunity to observe things change children will exhibit an understanding of the fact that the change was caused by a natural condition rather than a man-made one.

B. Learning Activities:
   1. Explore the meaning of natural changes by making soil. Worksheet attached.
   2. Have children go out on the school grounds and gather two stones and see if they can change them by rubbing them together. Ask the following:
      a. How might rocks in nature be rubbed together?
      b. How long would it take you to change enough rocks to make soil?
      c. How would rocks in nature get crushed?
      d. How long do you think it would take for these changes to occur in nature?

3. Find evidence of further change around the school grounds.
   a. A dead tree or branch (decomposition)
   b. Rust on metal surface (rusting, oxidation)
   c. A place where water drips constantly on pavement or soil (erosion, decomposition, building up on material from water)
   d. A place where soil is being formed. (decomposition, soil formation)
   e. Gathering of small dirt piles in gutters (soil particles moved by gravity and water)
   f. Moss, lichen or algae on buildings or rocks (plants starting to grow, die, decay and possibly aid soil formation)
   g. wind or weather changes
   h. cracks in paved areas (weathering, breakdown)
   i. Fire burning things (oxidation)
   j. Sun heating things (temperature change)
   k. Freezing water, melting water (freezing, melting)
   l. plant growing
   m. Bird and insect eggs hatching, growing (reproduction)
   n. Leaves turning colors (death, decomposition)

EXPLORING NATURAL CHANGES BY MAKING SOIL

Materials: enough rocks or pieces of rock about 3/4 - 1"in. size to be able to have about 1 - 1 1/2 - 2" of material in each of 5 jars. Smaller containers will require less material. Break rocks with a hammer until there are approximately 5 sizes, the smallest of which is about the size of sand grains.

Procedure:
   a. Arrange rocks in containers; sizes are progressively smaller as the numbers go from 1-4. Rock particles in 4 and 5 are the same size but 5 has organic matter added to the rocks, any kind of leaf or grass material. Only 1 - 2" of material is needed in each container.
   b. Place 2 bean seeds in each container about 1/2" under the surface and at the side of the container.
   c. Add enough water to keep the materials moist but no so much as to not allow material in 4 and 5 to "breathe".
   d. Observe results:
      1. How do rocks break down naturally?
      2. What kinds of things are necessary to form soil?
      3. How is soil formed in nature?
      4. What would happen if rocks were so hard they would not break down or leaves, plants and animals did not decompose?
      5. List things in your world that are natural products that are not being returned to the earth.

Unit Objective #4: Be aware of the fact that all man-made things are still natural resources that have been changed in a way that is not a natural process.

A. Criterion-Referenced Objective:
   1. Given the opportunity to discuss where man-made products come from. Children will demonstrate by their comments that they realize that all man-made materials are derived from man's changing natural resources.

B. Learning Activities:
   1. Making something from Natural Resources.
      a. Play Dough
         1. 1 c. salt
         2. 2 1/2 c. flour
         3. small amounts of cooking oil. Enough water make mixture consistency of dough.
         4. Food coloring
      b. Paste
         1. 1 c. sugar
         2. 1 c. flour
         3. 1 tbs. alum
         4. 11 qt. water
         5. Mix and cook until starch-like.
         6. Remove. Mix in 3 - 4 drops oil of cloves
         7. Cover and store

      Discuss:
      a. What natural materials did we start with and where did they come from?
      b. What processes did we use to change the materials?
      c. What will happen to the material in the item we made once we are finished with it?
      d. What would happen if we needed this man-made product but could not get enough of the flour, salt or water?
   2. Show pictures of man-made things such as buildings, cars, desks, chairs, pencils, roads, clothes, food and ask the children to figure out what natural resources were used to make the product.
   3. Take the children outside for a short walk, and try to find out how many things are made of the following materials: metal, plastic, wood, glass, stone, rubber, leather, paper. Let them draw pictures or list some of the many things they saw.
   4. Have each child in a short skit be a natural resource and say how they turned from a tree to a desk, from rocks mineral to a car, from rubber to a tree, etc. Example: 1 tree, 1 logger, 1 sawmill operator, 1 carpenter
   5. Have children draw a picture story of how paper is made.
   6. Make paper. (Directions attached)

PAPERMAKING

Materials for 4" x 4" paper:

a. 100 wooden match sticks
b. 1 glass jar that will hold the match sticks and bleach and will fit in a coffee can
c. 1 piece of window screen 4" x 4"
d. 1 one-pound coffee can
e. 1 c. of laundry bleach (with chlorine)

Procedure:

a. Break off all match heads. Take them outside and burn them or dispose of them in another manner.
b. Place match sticks and 1 cup of bleach in jar and put cover on jar loosely.
c. Paint coffee can flat black.
d. Place jar inside of can and cover the top of the can with the lid.
e. Place the can in a sunny spot for 2 - 3 days until wood fibers start to be suspended in the solution when the jar is slightly shaken.
f. When the whole solution is filled with fibers, stir the solution with a stick to loosen any remaining fibers from the match sticks.
g. Using tongs, remove the match sticks from the solution.
h. Allow the fibers to settle in the bottom of the solution.
i. Very slowly pour off as much bleach as possible. Some fibers will be lost but there should be plenty left to make paper.
j. Add one cup of water to the fibers and shake again, until all fibers are suspended.
k. Allow fibers to settle and pour off "rinse" water.
l. Add another cup of water to the fibers and shake them until the fibers are suspended.
m. Pour the solution into a flat pan that is large enough to hold the 4" x 4" screen. Slowly move screen around until fibers have completely covered it.
n. Gently lift the screen out and place it in a warm (not airy) place to dry..
o. When the material is dry, scrape one corner gently with a fingernail until it comes away from the screen then gently remove the completed sheet of paper.

Unit Objective #5: Recognize the interrelationship and the importance of natural resources to living organisms.

A. Criterion-Referenced Objective:
   1. The child will demonstrate through discussion and observation of the following experiment that they understand the relationships that exist among the environmental components that they see in the fish bowl.

B. Learning Activities:
   1. Materials: can be purchased at a pet store at approximately $2.50.
      a. 1 fish bowl 10" x 10"
      b. 1 female guppy
      c. 1 male guppy
      d. 1 small package of aquarium sand
      e. 1 piece of Saran wrap to cover top of fish bowl
      f. 1 bunch Anacharis
      g. 1 bunch Hari Gras
   2. Procedure:
      a. Fill the bowl with water to within 1-2" from the top and allow to stand at room temperature for 24 hours.
      b. Rinse enough of the aquarium sand to cover the bottom of the bowl with 1 + 1/2" of the material. Put the sand into the bowl.
      c. Anchor plants in bunches in the sand. Leave some open water on the surface.
      d. Allow to settle until the water clears and particles settle (15 - 20 min.)
      e. Place the two guppies in the bowl, cover the top with Saran wrap and place near a window that will provide a good source of sunlight. Have a shade of some sort available to prevent the bowl from becoming overheated by direct sunlight. A cardboard piece of paper will do.
   3. Discussion:
      a. What natural resources are in our world?
      b. What are the non-living and living parts of the system we are observing?
      c. Where does the air come from?
      d. What might happen if this experiment were conducted in a dark place?
      e. Where do plants get materials they need to make food?
      f. What are the fish eating?
      g. What would happen if we put in many, many plants?
      h. What would happen if we put 4, 6, 8, 12, 16, or 32 fish in the bowl?
      i. What will happen to the leaves from the plants that fall to the soil?
      j. What happens to the food that passes through the fish?
      k. What would happen if you took the plants out of the water?
      l. What would the fish be deprived of?
      m. How is our fish bowl like our world?

Unit Objective #6: The student will be able to understand the natural processes such as decomposition to the eventual renewal of natural resources.

A. Criterion-Referenced Objective:
   1. Given the opportunity to explain the way soil, air, or water renew themselves. Children will indicate a basic understanding of these processes.

B. Learning Activities:
1. "Nature's Way of Recycling" (worksheet attached)
2. "Recycle Your Own Paper" (activity 3 - objectives)
3. Make a water filter (activity 10 - objectives)

NATURE'S WAY OF RECYCLING

Materials: large clay flower pot, top soil, a few small stones, and a collection of typical litter. (newspaper, plastic, strip of tin can, glass, bread, etc.)

1. Cover the hole in the bottom of the pot with stones. Fill about 1/3 full with topsoil.
2. Add a layer of the liter you have collected.
3. Cover the liter with a layer of topsoil until the pot is 2/3 full. Sprinkle with water, but don't soak.
4. Cover the pot with a piece of plastic. Set it in a warm, dark place. Keep the soil moist.
5. After 2 - 3 weeks, dump the contents of the pot on a newspaper and with a towel spread it out.
6. Discuss results.

RECYCLE YOUR OWN PAPER

Materials: an old newspaper, mixing bowl, egg beater, a wood block, a square of window screen 4" square, a plastic sandwich bag, wallpaper paste or corn starch, water and a tablespoon.

1. Fill the bowl about 1/4 full of water. Tear a half page of newspaper into tiny pieces. Place the pieces in a bowl and let them soak for an hour.
2. After the paper has become thoroughly soaked, beat it with the egg beater. When the mixture has been thoroughly beaten, it should have the creamy texture of paper pulp.
3. Dissolve two heaping tablespoons of wallpaper paste in a pint of water. Pour into the pulp, stir.
4. Hold the piece of window screen flat and lower it into the pulp. Do this repeatedly until you accumulate a layer of pulp about 1/16 inch thick.
5. Set the pulp-covered screen on a newspaper and place a plastic sandwich bag over it. Press down with the wood block-gently at first, then with more pressure. The water will filter through the screen onto the newspaper.
6. Allow the fibers to dry for about 24 hours. Peel the fibers, now the paper, from the screen. Congratulations! You have just completed the process of recycling paper!

Unit Objective #7: Develop an awareness of the types and manner in which different regions develop their natural resources with an accent on occupations.

A. Criterion-Referenced Objective:
   1. The student will be able to list at least five types of work and occupations involved for each region studied.

B. Learning Activities:
   1. These activities are woven into the regions which follow. Northeast, North and South Central, and Western.
   2. Develop bulletin board of pictures of people working with natural resources.
   3. Get in touch with local natural resource agencies that may provide resource persons to come and visit.
   4. Cut out newspaper articles, pictures and want ads. Put these on a map of the U. S. in appropriate regions.

Agriculture	Marketing and Distribution
Business Industry	Government
Communication	Health Services
Transportation	Homemaking
Construction	General Community Services

   5. Make a three-dimensional product map of the U. S. Use real items made from the raw products. Students can bring in items to add to the map as successive parts of the country are studied.

Northeast- shipbuilding (toy boat) lumber and paper (pencil) fish (frozen fish wrapper) machinery (toy machine) dairy products (cheese wrapper) maple syrup (maple syrup label)

South- cotton (fluffy cotton) tobacco (candy cigarette) citrus fruits (orange juice label) coal (small lump of coal) textiles (fabric swatch) lumber (popsicle stick)

Midwest- lumber (toothpick) furniture (doll house) wheat (small cereal box) iron and steel (nail) automobiles (toy car) dairy products (butter wrapper)

Southwest- copper (penny) lumber (tounque depresser) paper (small pad) beef (toy steer) petroleum (toy oil can)

Far West- lumber (twig) potatoes (instant potato box) copper (penny) silver (crumpled silver foil) lead (paint-can label)

Alaska- fur (tiny piece of fur) fish (frozen fish wrapper)

Hawaii- pineapple (pineapple can label)

Unit Objective #8: The student will acquire a knowledge of the physical characteristics of the regions of the U. S.

A. Criterion-Referenced Objectives:
1. After studying the environment of the Northeast region the student will be able to list at least five characteristics of the climate for that area.
2. Given a list of the climate geography and physical geographic terms the student will be able to define them.
3. Given a file of newspaper items concerning climate the student will be able to identify which region of the U. S. it applies to.
4. After discussing causes, problems and remedies of water pollution, the student will be able to locate the newspaper articles on the subject.

B. Learning Activities:
1. Physical Geography

average annual precipitation
boundary lines
butte
canyon
climate
conservation
mesa
natural features
natural boundary lines
natural vegetation
raw material
spacial location
ranch
irrigation farming

Geographic Terms

commercial agriculture
commercial fishing
crop yield
fishing banks
growing season
manufacturing
population density
population distribution
rural area
suburb
urban area
surplus

Climate Terms

climate
frost
frost-free season
frost damage
growing season
evaporation
condensation
average annual rainfall
seasonal rainfall
thunderstorm
tornado
hurricane
hail storm
blizzard
humidity
average temperature
ocean current
westerly wind

Students will write definitions of words when introduced. Game of Concentration can be made up for students to play. Illustrations and examples of terms can be found. All material should be kept in vocabulary notebook.

2. Keep a file of newspaper items concerning water, storms, floods, frost damage in various parts of the U. S.
3. Plan and draw a mural showing the progression of a product from its source through completion and distribution to the consumer. Divide tasks of mural making among class.
4. Find examples of water pollution in Delaware. The Morning News and Evening Journal are sources of information.

Unit Objective #9: The student will understand man's utilization of natural resources.

A. Criterion-Referenced Objectives:
1. After studying the resources of the northeast region the student will construct a toothpick design depicting industry, agriculture, or any other related field.
2. Given a list of products common to the Northeast region the student will plan a well-balanced menu.
3. After reading about major types of work the student will be able to report findings telling what, where, when, how, how much, and why.

B. Learning Activities:
1. Write a letter to the Chamber of Commerce in an area where you would like to live inquiring about job opportunities and recreation. Follow up by writing a short report - Living and Working in _____.
2. Toothpick Designs- Arrange toothpicks in any design. Use tweezers to move toothpicks around in order to come up with a satisfactory result.
3. Prepare a lunch menu centered around foods common to the Northeast.

Baked beans	Clams
Brown bread	Fish sticks
Blueberry pancakes	Lobster
Codfish cakes	Maine potatoes
Cranberry juice	Maple-sugar candy

4. Prepare newspaper advertisement designed to attract new factories to move to their local communities. The advertisement should include the availability of raw materials, sources of power, labor supply, good transportation system, and accessibility to market.
5. Draw six columns. Head columns, "What, Where, How, When, How Much, Why". Read about one major type of work in the northeast region and report findings.

6. Collect the following information from a factory worker, office worker, farmer, truck driver, and/or service repair man.
   a. What is your daily schedule?
   b. Is it the same all year around?
   c. If not, how and when does it change?
   d. Are you concerned with the production of goods or the production of services?
7. Look through the yellow pages of a phone directory from this region. Complete the following chart.

Name of Job	Job Description	Education Required	Experience Needed
Salary	Fringe Benefits	Advancement Possibilities	How to Contact Employer

8. Collect ads from magazines and newspapers of manufactured items produced in the northeast.
   a. List and group those ads which are examples of products.
   b. List and group those ads which are examples of services.
   c. Graph products and number of ads in #a.
   d. Using products in #a have children write a paragraph on how a man on an assembly line might view them.
   e. Using products in #a have children use yellow pages to see which of the products are manufactured in the Delaware area.
9. Choose a product produced in a northeast factory.
   a. Make a poster to advertise the product.
   b. List reasons why people need or want the product.
   c. List raw materials necessary to make the product.
   d. List jobs involved in making the product.
   e. Bring in pictures of the product.

f. Investigate how and why the product has changed since it was first developed.
g. Make a chart showing sequence of production.
h. Try to determine the cost of the product to the manufacturer and buyer and compute the difference.

Unit Objective #8: The student will acquire a knowledge of the physical characteristics of the North-South-Central Region.

A. Criterion Referenced Objective:
1. The student will be able to list at least five ways in which man practices soil and water conservation.

B. Learning Activities:
1. Pretend you live in an area with a climate similar to Texas and have invited a friend to spend a vacation with you. Write a letter telling your friend what kind of climate to expect and what types of clothes he will need. You should include the average temperature and average rainfall or lack of it.
2. See activity 3 objective 8 in the Northeast.
3. Make a soil-runoff board (worksheet attached)
4. Studying soil as a Renewable Natural Resource (worksheet attached)
5. a. Get some flower pots and packet of bean seeds.
b. Collect soil (1) from area where soil has been compacted -- don't break up soil. (2) from area where soil is soft. (3) plant seeds in them.
c. Place the samples in a place where they will receive the same amount of light and water.
d. Water when surface is dry.
e. Observe growth and note differences.
6. Find out about the TVA. Explain why it is necessary for the states along the Tennessee River to farm a functional region. Tell why you think the functional region was successful.
7. Use microscope to study fibers. Transfer what you see in microscope onto paper. (it is usually very colorful design)
8. Plan a model to show how a delta plain could be built. Materials: long board to hold river bed clay or sand. Procedure: a. add enough loose soil or sand to cover board. b. place board at slight angle with pan to collect run-off water. Discussion: Is water clean or does it have dirt in it when it reaches the pan? What does this tell you about the way a delta plain is built?
9. Observe plant growth in different soils. Man has a responsibility to conserve and replenish soil. Soil is the basis for man's food. What do you think would be a good symbol for "Save the Soil". Make your own.
10. Be a soil scientist. Help the farmer use the soil in the best possible way. Use a soil borer. Study samples of soil.

STUDYING SOIL AS A RENEWABLE NATURAL RESOURCE

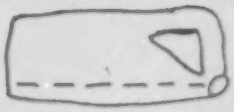
Materials: 2 small (1 cup) containers
bean seeds

Procedure: In the two small containers, put equal amounts of soil and one bean seed. Number the cups 1 and 2. As the bean plants grow to a height of about 6 inches, do the following: Remove the plant from cup 1. Throw it away and plant another seed. (Do not remove any soil with this plant) Remove the plant from cup 2 and have the children cut it into very small pieces. Mix these with the soil in cup 2 and plant another bean seed into the cup.

SOIL RUN-OFF BOARD

Materials: 2 plastic milk bottles
2 tin cans
2 quart jars

Procedure: 1. cut the milk bottles so as to make a tray.



2. Mark the quart jars in 1" increments with masking tape.
3. Punch holes in the bottom of the cans to make sprinkling cans.
4. Fill both trays with soil and plant rye grass in one of them.
5. As soon as the grass has grown 5 - 6". (2 months-possible to use sod also which will eliminate time problem) set the 2 trays side by side, tilted so bottle opening rests on edge of table. Put quart jars on floor below each.
6. Slowly pour 1 quart of water through the tin cans so that it falls in the middle of the samples.
7. Observe and record the amounts of water and soil collected in jars.

Unit Objective #9: The student will understand man's utilization of natural resources.

A. Criterion-Referenced Objectives:
1. The student will be able to compose a business letter asking for information on a product studied.
2. Given a suitable activity, the students will develop a sequence of production comparable to a factory's sequence used in production.
3. Given a list of three crops the student will be able to discuss soil preparation, planting, harvesting for each.
4. The student will be able to list products resulting from three crops grown in this region.
5. Given a list of 10 jobs the students will be able to underline 5 that are unique to the North-South-Central States.

B. Learning Activities:
1. Write a business letter to one of the following companies asking for information:

a. Seed Catalog:

W. Attee Burpee Co.
Box 6926
Philadelphia, PA 19132

b. Mineral Resources:

Bureau of Mines
Publication Branch
4800 Forbes Ave.
Pittsburgh, PA 15213

American Gas Assoc.
605 Third Ave.
New York, NY 10016

c. Products Derived from Coal:

Allied Chemical Corporation
40 Rector St.
New York, NY 10006

d. Oil:

Pa. Grade Crude Oil Assoc.
Oil City, PA 16301

American Gas Assoc.
605 Third Ave.
New York, NY 10006

Independent Petroleum
Assoc of America
Box 1019
Tulsa, OK 74101

Pa. Petroleum Products
Box 989
Oil City, PA

2. Divide the class in half. Provide materials for making paper chains. Have on half work individually, cutting, pasting, and assembling. Direct the other half to divide the work with some children cutting strips, others pasting and some assembling. Compare quantity produced, time required and quality of finished product.
3. See Objective 9 Activities 1, 5, 7, 8, 9.
4. Have students make a bulletin board display of pictures illustrating modern mechanized agriculture. Efforts should be made to include as many facets as possible, e.g. farm machinery, fertilizers, plant breeding, storage, transportation, conservation, education and prevention of disease and pests.
5. Have a committee make an illustrated and labeled chart of wheat food products.
6. Write to the Telephone Co. to request phone books from the North-South-Central area. Compare occupations listed in the yellow pages with those in our area. Given a chosen occupation interest, are there certain areas of this region where it would be impossible to find a job?
7. Trace an article of clothing from the raw material to the finished product. Make a flow chart to illustrate this.
8. Assign a bulletin board committee to illustrate the wide variety of materials available in modern clothes. Use real swatches if possible.
9. Specify several ways in which cities receive and distribute the products of natural resources.
10. Think of the U. S. as a freight train. Think of the products or natural resources from a particular state. Showthe interdependence between states. If a car is removed, how will the situation change?
11. Make Peanut Brittle:

    1 1/2 c. sugar
    1/2 c. liquid corn syrup
    2 Tb. water
    1 1/2 c. raw peanuts
    1/4 t. salt
    1 t. baking soda
    1 1/2 t. butter

    Cook sugar, syrup and water until mixture spins a thread. Add raw peanuts and cook until syrup is light brown. Remove from heat. Add salt, soda and butter. Stir briskly and pour into well-buttered cooking sheet. Spread rapidly with spatula. Stretch thin. When hard break into pieces. Serves 25 - 30.
12. Plan a Southern menu using the following products. Have a tasting party.

    biscuits
    black-eyed peas
    fried chicken
    cola
    ham
    hominy grits
    oysters
    peanut butter
    pecan pie
    pralines
    shrimp
    sugar

13. Plan a well-balanced North-Central menu.
    bacon — hamburgers
    corn bread — milk
    corn flakes — steak
    eggs — wheat cakes with corn syrup
14. List as many things in your home made from steel.
15. Find out about problems cattle farmers face.
    e.g. competition — laws
    wild life — weather
    erosion — fire
    disease or insects
16. Find out which crops are picked. (1) by hand (2) by machine
17. What is the migrant worker situation in these states? How does the role of the migrant laborer change?
18. Where would each worker go to find work?
    Sheep shearer
    Dairyman
    cattleman
19. Trace a grain of wheat (corn) from planting to its final form as a loaf of bread. Name the many occupations that are involved. Draw or find pictures to illustrate each step of production.
20. Have children develop a bulletin board of pictures of people working with soil. Group the pictures so as to illustrate clusters of similar careers. Have the students study and react to the display during a class discussion.

Unit Objective #8: The student will acquire a knowledge of the physical characteristics of the western region.

A. Criterion-Referenced Objectives:
   1. Using samples of wood, the student will demonstrate a knowledge of grain, color, and surface.
   2. Given the opportunity to discuss minerals the children will demonstrate by their comments knowledge of: minerals are elements or combinations of elements. They have definite crystalline structures.

B. Learning Activities:
   1. Collect different kinds of finished wood. Show grain, color, and surface.
   2. Take a walk through the Nature Trail. Study tree rings, damage by insects, do tree bark rubbings.
   3. Examine lumps of coal with a hand lens. See if you can find remains of leaves and other plant parts in the coal. You may decide to break coal open first.
   4. Make crystals:
      Materials: 1/4 c. salt
      1/4 c. blueing
      1/4 c. water
      1 Tb. amonia
      Procedure: Recorded on the following page.

Procedure: Mix above ingredients and pour over crumbled paper towels in a pie pan. Add small amounts of food coloring and colors will show in crystals. Crystals will start to form in one hour and continue for five hours. Observe and discuss results.

Unit Objective #9: The student will understand man's utilization of natural resources.

A. Criterion-Referenced Objectives:
1. Given a list of products common to the western states, the student will plan a well-balanced menu.
2. The student will be able to draw a picture of at least one occupation unique to the western states.
3. The student will be able to describe the process by which timber is converted to usable products.
4. Students will prepare a report on government controls pertaining to the western states.
5. Given a list of raw materials the student will be able to list products which are made from them.
6. Given a ditto sheet which explains how the Eskimos build a snowhouse and given step by step directions each student will construct his own snowhouse.

B. Learning Activities:
1. Make a collection of labels taken from cans of salmon. Read labels to find the names of places printed on them. Make a list of these names. Make a display.
2. Prepare a well-balanced western menu using products below and have a tasting party.

abalone	crab
apples	date bread
chilli	enchiladas
citrus fruits	lemonade
orange juice	milk
salmon	

3. Read Paul Bunyon stories. Judge whether Paul Bunyon was a good symbol for the lumbering industry.
4. Make a pictorial map of the U. S. showing where particular kinds of trees grow best. Make a pictorial map showing what product is produced from the trees.
5. Discuss various occupations relating to forestry: forester, forest technician, forester aide, range manager, range technician, range aide, etc.
6. Tell each child to choose a wood product. He is to tell or write at least three people who have jobs relating to the development of that product. The student may use books, magazines, newspapers, and filmstrips.
7. Make a display of the development of a wood product from tree to consumer.

8. Organize class in groups of 2 - 3. Each group should compile as large a list as possible of products made from wood. When each group has finished come together in a large group and guide students in the three different classes of timber. The students will then place the products under the correct heading - wood product, chemical product, pulp product.
9. Write letters to western state newspapers asking for copies of papers. Investigate the jobs offered. Discuss the similarities and differences of jobs there and in our area and reasons for the difference.
10. Draw a political cartoon illustrating the conflict between the government and a forester over the use of the land. Argue: The country needs trees vs. I can do what I want to with my land; it's a free country.
11. Discuss occupations in the area of minerals and petroleum fuels. Have each student select one job that interests him, research the job, and role play a typical work role or job situation.
12. Have children make a list of all the things they see around them that are made from or require use of minerals. Divide this list into use categories suggested below.

Buildings	Toys
Clothing	Jewelry
Transportation	Other

13. Each student chooses a mineral and finds out as much as he can. The following questions are guidelines:
    a. What is the material?
    b. What minerals go into the making of the material?
    c. Where do the minerals come from?
    d. How much of the minerals are there on earth?
    e. What kinds of processes are used to make the minerals usable?
    f. What kinds of jobs are necessary to find the minerals?
14. The students are to write to Minnesota Mining and Manufacturing to obtain information about the five mining techniques. (placer, dredging, open-pit, strip or quarrying). Taking each technique separately the students are to list equipment and workers applicable to each. They should also list at least two minerals obtained by each method.
15. On a table place:

rock	model of airplane	box of salt
coal	car of metal	glass
tools	aluminum pen	can of motor oil
nails	penny	gold pin
silver coin		

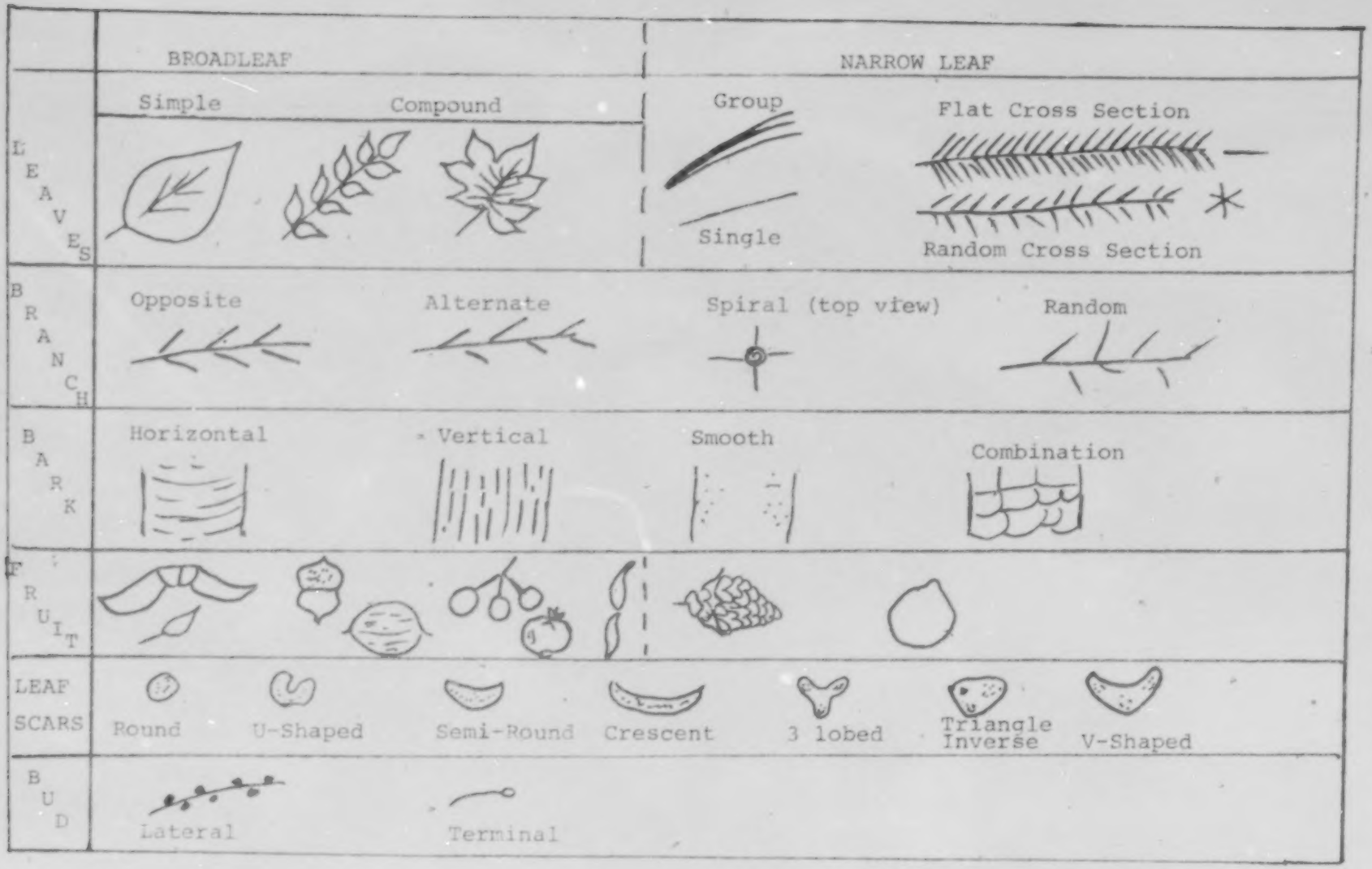
    From what raw materials do these articles come from?
16. Classify trees using worksheet attached.
17. Generate a discussion of products possible in the near and distant future concerning iron, oil, or uranium. Each child is to create a drawing of the product and the person who may produce it.

18. Make a collage of the uses of oil, iron, and uranium. Make another showing future uses.
19. Choose a product and complete the chart below. Example:

What	Where	When
fishing for salmon	near coast of Calif. streams in Washington and Oregon	between March and April
How	**How Much**	**Why**
fishing vessel trolling trop netting	Most valuable	salmon live in the ocean most of the time

20. Make a snowhouse (see attached sheet). Each child is to bring in a one lb. box of sugar cubes, a piece of cardboard 8" x 10" and glue. From given pattern each student will trace the shape on a piece of white construction paper and cut it out. Follow directions on attached sheet.

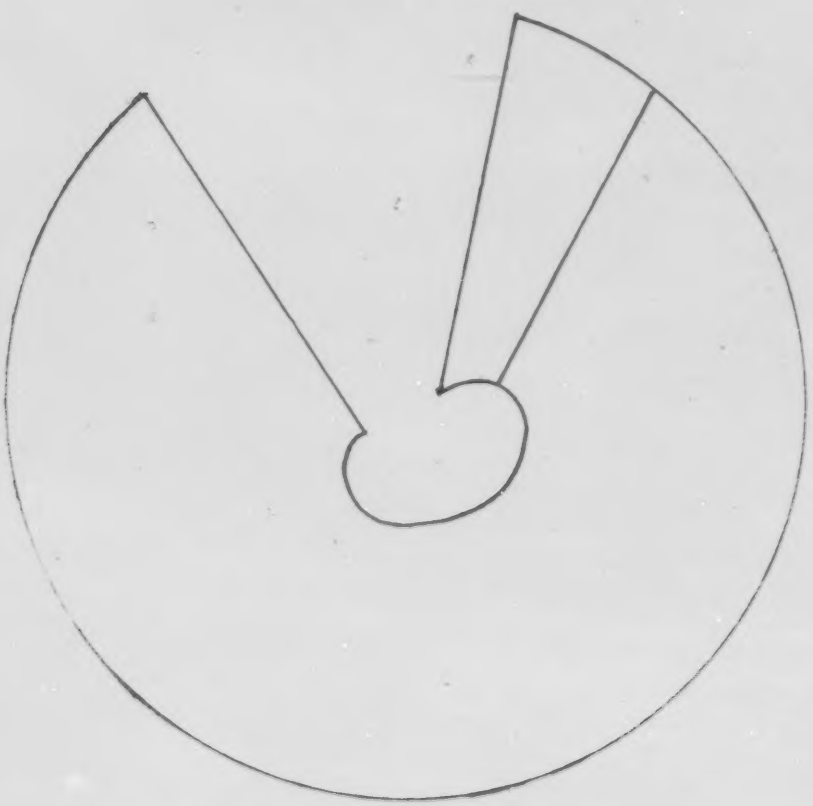
Use as a guide to become familiar with the parts of a tree.



DIRECTIONS FOR MAKING SNOWHOUSE

1. Use the pattern provided. Trace and cut out shape.
2. Overlap the ends of the shape to the approximate line drawn on the diagram and glue the ends together making a cone.
3. Glue the base of the cone to an 8" x 10" piece of cardboard.
4. Begin to glue a row of sugar cubes around the base of the cone, making sure it touches the cone.
5. The second row is then glue on top of the first, the second, the third, etc. Rows must slant toward the center of the house to make it dome-shaped. The cone will be completely covered and acts as a guide and support for the sugar cubes.
6. Allow to dry overnight.
7. Use crayons or chalk to decorate the area of the cardboard around the snowhouse.

PATTERN FOR SNOWHOUSE



Unit Objective #10: The student will be able to speculate on the changes future technological advances may make in the way we work and live.

A. Criterion Referenced Objective
1. Through pictures, experiments, field trips, and diagrams the student will predict future energy sources.

B. Learning Activities:
1. Visit Solar One
2. List ways and importance of control of water (dam, irrigation). Diagram results.
3. Demonstrate nuclear reaction. Set a number of mouse traps close togehter each holding two ping pong balls. Trigger one of the traps by releasing ping pong ball into area. The result is a chain reaction. Explain how this chain reaction is similar to that of a nuclear chain reaction. (Use dominoes, books, etc. as an alternative to mousetraps)

C. Evaluation:
1. Puzzle worksheets attached
2. Ralley the U. S. worksheet
3. Play concentration with states and their capitals.
4. Print the name of one occupation vertically, then write a poem about the occupation using each letter as the first letter of a line.

F oods
A re
R easons why
M achines
h E lp
farme R s

f. A game could be organized to test geography knowledge. Questions could be written on slips of paper; folded and put into a "grab bag". Two team members take turns at grabbing and answering questions. A student takes one question from the bag, reads it aloud and answers it, earning a point for his team. If he can't answer a volunteer from the opposing team can earn a point for his team by answering correctly.

RALLY THE UNITED STATES

1. _____ The Centennial State; also the home of Pikes Peak.
2. _____ Home of the Grand Canyon.
3. _____ Santa Fe, the oldest city west of the Mississippi River, is in this state.
4. _____ The Lone Star State.
5. _____ E's for i's
6. _____ Known for its peaches and peanuts.
7. _____ The Appollo missions were launched from Cape Canaveral, here.
8. _____ "Been to _____ with a banjo on my knee."
9. _____ Home of jazz, pralines, bayons, and the Mardi Gras.
10. _____ The state where "The Alamo" is.
11. _____ The Hoosier state; its capital contains its name.
12. _____ Jamestown, the first permanent English settlement in America, was here.
13. _____ The State in which Abraham Lincoln practiced law.
14. _____ Breadbasket of America; Wild Bill Hickok was a sheriff here.
15. _____ This state had a Gold Rush in 1849.
16. _____ This state has the Great Salt Lake Valley.
17. _____ Known for its potatoes.
18. _____ First new state to join original thirteen states.
19. _____ The Keystone State, settled by the Quakers.
20. _____ "Dairyland of the Nation".
21. _____ Mount Rushmore is in South _____.
22. _____ Fourth largest state; Helena is the capital.
23. _____ The Beaver State.
24. _____ Las Vegas is here. Less rain falls here than in any other state.

CROSSING STATE LINES

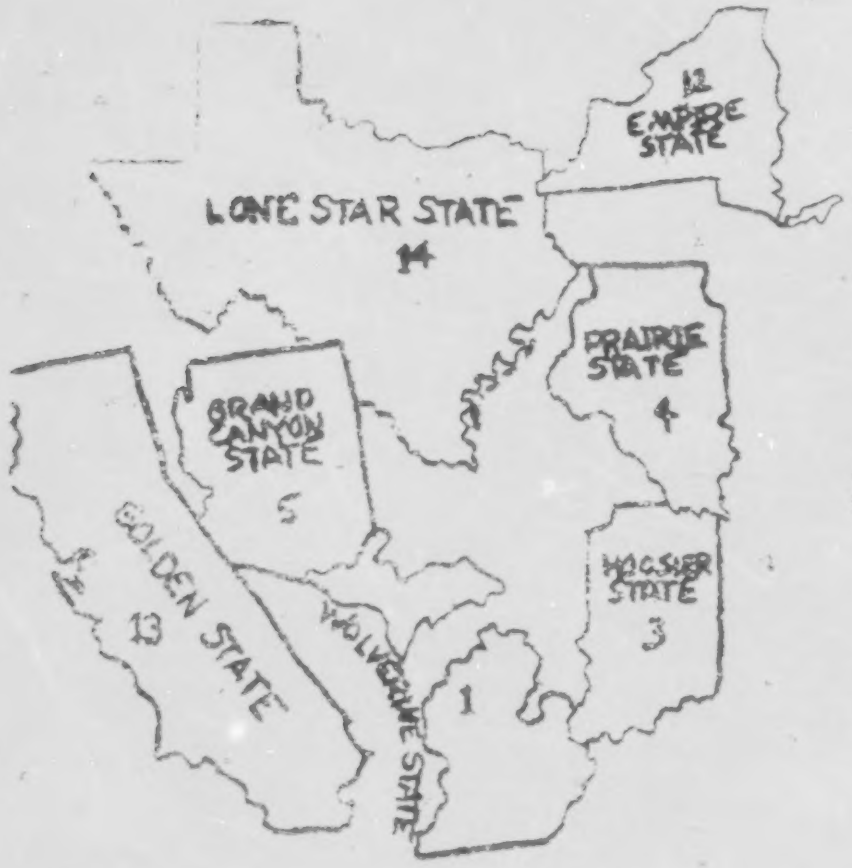
Here's a different kind of traffic problem. You are going to travel across state lines. The problem is to know which state you have to cross in order to get from Column I to Column II in these ten problems.
(Cross out the wrong state and leave the right state.)

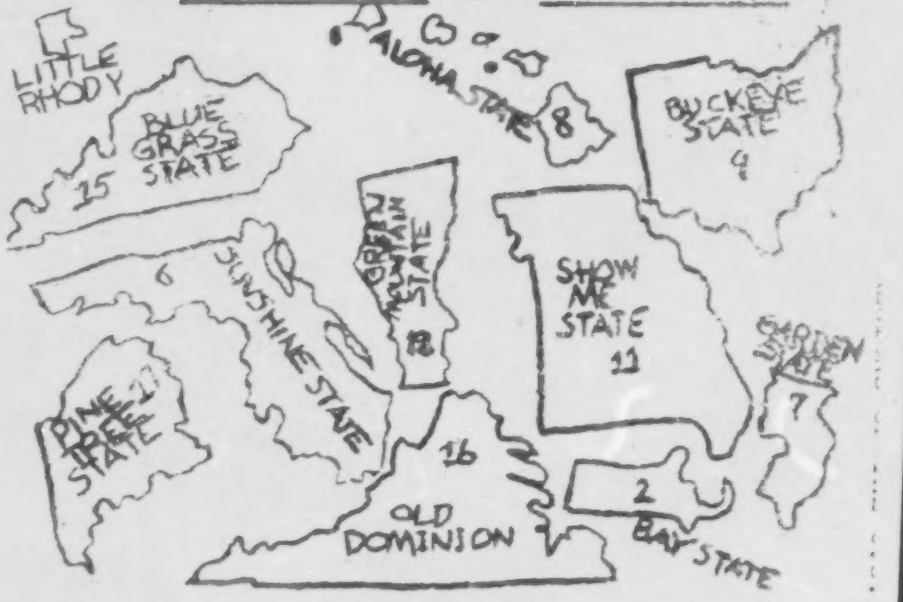
Column I		Column II
FROM	THROUGH	TO
1. Tennessee	Kentucky Arkansas	Indiana
2. Kansas	Ohio Nebraska	South Dakota
3. Montana	North Dakota Wyoming	Colorado
4. Louisiana	Mississippi Texas	Alabama
5. New Mexico	Nevada Utah	Idaho
6. Oklahoma	Missouri Nebraska	Iowa
7. Delaware	Virginia Maryland	West Virginia
8. Florida	Georgia Alabama	South Carolina
9. Pennsylvania	Ohio Indiana	Michigan
10. North Dakota	Minnesota Michigan	Wisconsin

STATE YOUR NICKNAME

Using the outlines and nicknames as clues, how many of these states can you name?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____





Akron
Athens
Austin
Boston
Buffalo
Chicago
Dayton
Denver
Detroit
Flint
Fresno
Ft. Worth
Hartford
Helena
Hollywood
Houston
Jackson

Kansas City
Las Vegas
Los Angeles
Memphis
Miami
Milwaukee
Mobile
New Orleans
New York
Omaha
Akron
Philadelphia
Phoenix
Salem
San Francisco
St. Louis
St. Paul
Tampa
Tulsa
Washington, D.C.

L	B	O	Z	L	M	N	O	J	A	C	K	S	O	N	P	M	E	M	P
A	O	J	N	O	T	S	U	O	H	S	E	N	D	E	N	T	S	I	H
S	B	S	K	Q	L	Z	Y	I	W	M	B	O	C	F	Z	B	N	C	H
V	P	A	A	M	W	S	C	J	Y	T	O	R	E	A	F	M	E	S	E
E	A	T	Z	N	H	A	R	Q	P	W	I	B	U	Q	P	E	H	T	L
G	D	L	L	Q	G	N	O	T	Y	A	D	V	I	H	O	M	T	J	K
A	A	O	D	O	Z	E	Y	L	E	P	S	R	O	L	Y	P	A	C	W
S	A	C	V	R	B	F	L	P	D	N	T	E	Z	A	L	E	O	T	A
P	K	S	T	E	R	O	S	E	A	P	H	O	M	I	Y	I	C	A	C
T	R	J	A	F	H	M	X	E	S	I	L	Y	J	H	P	E	R	A	D
W	P	I	S	Q	I	K	L	Z	X	W	Y	K	T	P	Y	O	R	H	N
O	O	N	H	V	M	R	K	R	A	E	P	E	I	L	W	Q	N	S	O
E	O	P	E	G	O	C	U	G	E	I	R	O	G	S	S	P	C	A	T
T	N	S	I	W	S	H	Z	J	A	V	M	Y	P	O	E	P	G	S	G
A	T	S	I	T	I	K	A	R	E	A	N	W	T	A	P	O	G	C	H
T	S	N	E	A	T	O	R	V	H	O	P	E	E	L	J	E	L	I	T
N	H	A	D	G	J	E	A	P	T	D	I	N	O	A	O	T	C	I	O
I	O	T	T	L	O	I	S	P	A	E	A	S	S	I	R	T	T	E	
						O	L	A	E	C	J	E	P	E	A	O		A	
				I	S	H			E	A	C	S	T	E	A	Q	T	N	

ABBREVIATIONS OF STATES

If you don't take the spelling too seriously, the answer to each question below can be made by using the ABBREVIATION of the name of one of the 50 states of the United States. For instance, how many little Indians were there? Answer: Tenn. (or ten!)

1. What does a little boy usually need to do? _____
2. A poor speller might write, "This is the _____ of the story."
3. We call my grandfather _____.
4. Gold _____ is a mineral.
5. Dr. Brown is an _____ , not a Ph. D.
6. A _____ is as good as a mile.
7. I hope you aren't _____ (sick).
8. Before the rains came, Noah built an _____.
9. "_____", exclaimed Jane.
10. He goes to _____ on Sunday at St. Mary's.
11. The Supreme Being of the Mohamedans is _____.
12. My brother must _____ the grass.
13. A small valley or vale is called a _____.
14. I don't care for the _____-ture of that material.
15. _____ was as sweet as apple cider.

Can you spell the full names of each of the states abbreviated above? Write them on the blank after each sentence above.

HIDDEN STATES

The names of five states are hidden here. There is one state in each sentence:

1. He was told to color a dog black.
2. The teacher said, "Al, ask an intelligent question."
3. Take your washing to Nick's laundromat.
4. The radio was on too loud.
5. Miss, our ice cream is the best.

HIDDEN CITIES

Now find the cities--one in each sentence:

1. Will the transport land on time?
2. The lion leaves his den very often.
3. Mom, I am in the basement.
4. We'll have rain today, tonight, and tomorrow.
5. He can get a tune from a harp.

WORD FIND 29

STATES

MONTANA
NEBRASKA
NEVADA
NEW HAMPSHIRE
NEW JERSEY
NEW MEXICO
NEW YORK
NORTH CAROLINA
NORTH DAKOTA
OHIO
OKLAHOMA
OREGON
PENNSYLVANIA
RHODE ISLAND
SOUTH CAROLINA
SOUTH DAKOTA
TENNESSEE
TEXAS
UTAH
VERMONT
VIRGINIA
WASHINGTON
WEST VIRGINIA
WISCONSIN
WYOMING

E	D	C	A	T	O	K	A	D	H	T	U	O	S	A
E	E	A	F	N	E	W	M	E	X	I	C	O	C	H
S	D	G	N	O	T	G	N	I	H	S	A	W	F	D
S	G	N	I	M	O	Y	W	A	D	A	F	K	H	E
E	K	A	K	S	A	R	B	E	N	U	T	L	N	R
N	L	N	C	I	B	B	G	E	N	A	E	U	I	I
N	V	I	J	B	A	Z	V	T	O	V	T	I	S	H
E	I	L	H	M	A	A	G	C	G	A	J	N	N	S
T	R	O	N	F	D	X	Y	K	E	R	O	M	O	P
H	G	R	O	A	O	A	E	W	R	P	O	H	C	M
Y	I	A	B	P	E	G	X	T	O	O	I	I	S	A
E	N	C	A	M	O	H	A	L	K	O	Y	J	I	H
B	I	H	R	T	N	O	M	R	E	V	S	W	W	W
V	A	T	O	K	A	D	H	T	R	O	N	N	E	E
G	T	R	F	S	G	Y	E	S	R	E	J	W	E	N
L	S	O	U	T	H	C	A	R	O	L	I	N	A	H
S	U	N	P	E	N	N	S	Y	L	V	A	N	I	A
A	D	N	A	L	S	I	E	D	O	H	R	D	B	E
D	X	W	W	E	S	T	V	I	R	G	I	N	I	A

REGIONS OF THE U.S.

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      g. High Clouds #551.6
      h. Mark's Alaskan Farm #551.5 (print #10)
      i. Mountains #912.14 (print #21)
      j. Sheep #636 (print #7)
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C. Cotton
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D. Manufacturing
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   2. Filmstrips:
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      b. Working in Manufacturing - Eye Gate #658.37
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Unit Title: PLAINS REGIONS OF THE U.S.

I. Unit Overview: The topography and availability of natural resources of plains regions have contributed significantly to the industrial and agricultural development in these regions. Constant improvement of transportation and communication facilities have encouraged even greater development of these regions. People of the plains regions, therefore, are involved in a wide variety of interdependent occupations.

This unit will be presented to approximately 65 fourth grade students during a six week period.

II. Unit Content Outline:

A. Introductory study
   1. Definition of plains
   2. Three kinds of plains
      a. Grassland plains
      b. Forest plains
      c. Wasteland plains
   3. Ways plains are formed
      a. Moving water deposits
      b. Lakes drying up
      c. Rivers dropping salt
      d. Erosion of mountains
      e. Glacier action

B. Changes in plains regions
   1. Man--initiated
      a. Harmful changes
         --Over confidence of amount of land
         --Poor farming practices
      b. Conservation practices
         --Crop rotation
         --Irrigation
         --Use of fertilizer
         --Reforestation
   2. Recent developments
      a. Transportation
      b. Communication

C. Living in plains communities
   1. Central plains
   2. Great plains

III. Unit Objectives:

1. The child will be able to give characteristics of the kinds of plains.
2. The child will be able to list ways a plains region may be formed.
3. The child will be able to state examples of changes in the plains regions of the U.S.
4. The child will demonstrate general knowledge about the cities and products of the Central and Great Plains regions.
5. The child will be able to summarize the changes in farming due to the more scientific methods now being used.

IV. Unit Description:

A. Criterion-Referenced Objectives:

1. The child will be able to describe a plains region by giving at least two photographical characteristics of a plains region.
2. Given a picture of a plains region, the child will be able to identify it as a grassland, wasteland, or forest-covered plain.
3. The child will be able to list three kinds of plains.
4. The child will be able to list five ways in which plains are formed.
5. The child will be able to state three examples of damage that the settlers caused in the Great Plains region.
6. The child will be able to list four examples of conservation practices in the plains regions of the U.S.
7. Given the name of a piece of farm machinery, the child will be able to state how it makes the farmer's work easier.
8. Given previously discussed information on the development of farm machines, the child will create and explain a diagram of a farm machine to be used in the year 2000.
9. The child will be able to cite two examples of scientific farming by drawing pictures of each example.
10. The child will be able to state three ways in which more efficient farming has affected the occupational opportunities of agricultural communities.
11. Given a specific change evoked by man or nature in a plains region, the child will be able to cite examples of industries affected by that change.
12. The child will be able to write a report on a person who has contributed to the progress of conservation and agriculture, including biographical facts, the nature of the change the person initiated, and how the change altered the world of work in agricultural communities.
13. The child will be able to list four ways in which improved transportation has helped the farmer.
14. The child will be able to state two ways in which communications has made the farmer's work easier.
15. The child will be able to identify the products, industries, and major cities of the plains states by completing a test.
16. The child will write a report of at least 100 words on a specific plains region city.

B. Learning Activities:

1. Examine and discuss picture on pp. 124-125 of text.
2. Pick out examples of plains regions using study print set "America the Beautiful".
3. Disucss characteristics of pictures of various plains regions; through discussion, determine type of plain shown.
4. Gather and mount pictures of each way plains are formed.
5. Use pictures for bulletin board display.

6. View films Dust Bowl and Erosion-Leveling the Land.
7. Guest speakers: A representative from Dept. of Agriculture Soil and Water Conservation. His role in conservation. Related jobs, relation to all jobs. A farmer.
8. Filmstrips for individual use with filmstrip viewers.
9. Examine and discuss pamphlets on the history of a farm machinery company.
10. Film Big Harvest--The Story of Agriculture.
11. Discuss modern farm--oriented problems using newspaper articles as a basis of discussion.
12. Establish constant need for revision of old farming methods and invention of new farming methods and machinery.
13. Draw picture of a new piece of farm equipment and explain its function.
14. Incorporate individual pictures into scheme for class mural.
15. Make mural as class project. (Comparison mural may be completed using identical background and old farming methods)
16. Examine picture graph of people supported per farm worker 1820-1968.
17. Discuss changes which have and will occur in agricultural communities because of farming developments.
18. Add 1974 data to picture graph.
19. Determine four ways in which improved transportation has helped the farmer.
20. Discuss occupations which have developed or disappeared because of these changes.
21. Assign pairs of children to work on reports on the plains states.
22. After research periods and organizations time, written reports would be prepared. Groups would present highlights of their reports to the entire class. At end of presentations, class review would take place.
23. From a booklet listing Chamber of Commerce addresses of U. S. cities, children each pick a city in plains region. They write letters to the Chamber of Commerce asking for any free information available about the city.
24. A large map of the United States would be used to show from where their letters came.
25. The children would use this material and supplementary reference material to write a report on their cities.
26. Worksheets--(separate sheets)

C. Materials:
1. Text, You and Regions Far and Near, (activity)
   a. pp. 124-126
   b. pp. 126-127
   c. p. 128
   d. pp. 130-132
   e. pp. 139-140
   f. p. 132.
   g. p. 133
   h. pp. 138-144
2. Study print set "America the Beautiful".
3. Pictures of plains regions.
4. Films: Dust Bowl and Erosion--Leveling the Land.

5. Filmstrips: Irrigation Farmer, Conservation, Saving Our Land, Saving Our Wildlife, Wildlife Conservation.
6. Play "The Last Tree", (Weekly Reader).
7. Pamphlets of the history of Deere and Company.
8. Film: Big Harvest--The Story of Agriculture.
9. Newspaper articles on farm problems.
10. 12" x 24" sheets of white paper
11. Crayons
12. White paper for rough drafts.
13. Large sheets of paper for murals.
14. Paint
15. Worksheet graph "People Supported Per Farm Worker"
16. Background information for teacher obtained from Extension Service, University of Delaware and Problems Book, Regions of the United States (published by SRA).
17. Examine newspaper from plains region for articles indicating changes evoked by man or nature.
18. References from classroom resource center and school library.
19. List of required material to be included in reports.
20. List of ideas for other material to be covered by reports.
21. Booklet of Chamber of Commerce addresses of U. S. cities.
22. Map of the U. S.
23. Bulletin board space for display of materials received.

D. Evaluation:
1. Child gives at least two topographical characteristics of a plains region.
2. Child lists the three kinds of plains.
3. Child identifies picture of plains region as grassland, wasteland, or forest-covered plain.
4. Child lists five ways in which plains are formed.
5. The child states three examples of damage that the settlers caused in the Great Plains region.
6. Child lists four examples of conservation practices in the plains regions of the U. S.
7. Child completes chart on farm machinery and how it helps the farmer.
8. Child draws a picture of the farm machine which he has invented and explains either orally or in written form its operations and functions.
9. Child draws two pictures which represent examples of scientific farming.
10. Child states three ways in which more efficient farming has affected the occupational opportunities of agricultural communities.
11. Given a list of ten changes evoked by man or nature in a plains region, the chile will be able to cite an acceptable example of an industry affected by eight of those changes.
12. Child writes report including biographical facts, nature of the change, the person initiated, and how the change altered the world of work in agricultural communities. (suggested topics on next page)

Suggested Topics:

Luther Burbank	John Muir
George W. Carver	Fairfield Osborn
John Deere	Louis Pasteur
Cyrus H. McCormick	Theodore Roosevelt
Gregor J. Mendel	

13. Child lists four ways in which improved transportation has helped the farmer.
14. The child states two ways in which communication has made the farmer's work easier.
15. Given a test of 25 short answer items on the products and major cities of the plains states, the child will be able to correctly answer 18 of them.
16. Child writes report of at least 100 words on a specific plains region city.

EXTRA ASSIGNMENT FOR THOSE WITH EXTRA AMBITIONS

Find out all you can about the history of one farm machine. Show the rest of the class what you learned by either making a report or making a chart showing the changes that have occured in this machine throughout the years.

POST-TEST:
(*items are pre-test sections)

*I. Make each of these a true sentence by adding one or two words.

1. The rich soil of the central plains region of the U. S. was deposited there by _____.
2. The largest plains region of the U. S. stretches from the _____ mountains to the _____ mountains.
3. The _____ River divides the Great Plains region.
4. Much of the corn grown in the corn belt is used to _____ _____.
5. Most of the farms in the northern part of the Central Plains produce _____.
6. The most important crop grown in the drier western plains is _____.
7. _____is mined in Minnesota's Mesabi Mines.
8. Two of the Great Lakes ports are _____ and _____.
9. One of the major crops of Michigan and Wisconsin is _____.
10. The major industry in Oklahoma City, Oklahoma is _____.
11. _____, North Dakota is a famous trading center.
12. The limestone mined in Michigan is used by _____ factories.
13. _____ is one of the plains states in which oil and natural gas are formed.
14. Large herds of _____ are raised in the drier sections of the Great Plains.
15. Most of the work in the Central Plains involves _____ not farming.

NOTE: Although this test is starred as a pre-test it is also given as a post-test.

TEST:

*II. Answer each of these with one or two words.

1. What body of water connects the Great Lakes to the Atlantic Ocean? _____

2. Name two major manufacturing cities in Texas.

_____ _____

3. What is the most important work in the Great Plains?

_____

4. Which crop is the most important product of Kansas?

_____

5. What do we call the grassy topsoil that covers most of the plains states? _____

6. Which country is the leading meat-producing nation of the world? _____

7. Which country is the leading wheat-producing nation of the world?

_____

8. Name two minerals mined in Texas and Oklahoma.

_____ _____

9. Name two minerals mined in the Great Plains.

_____ _____

10. What do we call the large farms in Texas and the other Great Plains states? _____

NOTE: Although this test is starred as a pre-test it is also given as a post-test.

TEST:

*III. Match each of these words and their definitions:

_____Conservation	a. Providing water for plants by man.
_____Reforestation	b. Planting a new tree for every tree cut down.
_____Irrigation	c. Changing the place where a crop is planted from season to season.
_____Crop rotation	d. The wise use of soil and other resources.

IV. Name the three kinds of plains.

_____

_____

_____

V. Give five ways in which plains are formed.

_____ _____

_____ _____

_____

VI. Describe three ways in which scientific farming has changed occupations in an agricultural community.

_____

_____

_____

VII. Describe three ways in which early settlers damaged the Great Plains.

_____

_____

_____

_____

SUPPLEMENTARY ACTIVITY

ROLE PLAYING

Have volunteers assume the roles of early settler, Theodore Roosevelt, conservationist, and modern farmer. Class will interview these people to determine their roles in the growing conservation movement.

Teacher may suggest positions for each of the people to take, if the children are not sure of themselves:

SETTLER--Justifies his poor use of the land.

OTHERS-- Describe the effects of poor farming practices and their role in the conservation movement.

FARM MACHINERY HELPS THE FARMER

List at least three farm machines. Tell how each helps the farmer.

MACHINE	HOW IT HELPS THE FARMER
1.	
2.	
3.	
4.	
5.	
6.	
7.	

*Think of as many as you can.

PLAINS REGIONS OF THE UNITED STATES

WORK SHEET

People of the plains are affected by constant change. Tell which of these men would be the most affected by each of these changes: farmer, lumberman, miner.

1. Artificial materials are used in construction.
2. New source of iron ore is uncovered.
3. Corn blight strikes.
4. Congress passes an act reclaiming dry western land by irrigation.
5. Satellites predict weather two weeks in advance.
6. Steel mill strike hits eastern cities.
7. Grasshoppers develop resistance to all known insecticides.
8. Forest fires rage through North and South Dakota.
9. Formula developed which doubles the speed with which a tree grows.
10. Congress passes an act changing our money standard from gold to copper.

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

SUPPLEMENTARY WORKSHEET

Last week, the farmer and his family used many ways of communicating with other people. Some of the ways were necessary to the farmer's work; the other ways only made the family's lives more pleasant. The ways they used are listed below. Decide in which category each belongs. Write the sentence under the proper heading.

1. Farmer listened to music on the radio.
2. Farmer reads sport pages of the newspaper.
3. Billy Farmer wrote to his best friend.
4. Veterinarian called the farmer about his cattle.
5. Sally Farmer called the candy store.
6. The daily weather reports given on radio were listened to.
7. Children sent a telegram to their grandmother.
8. Mrs. Farmer watched her favorite television program.
9. Farmer reads grain price lists in the newspaper.
0. County agent called the farmer about insect control.

MAKE LIFE MORE PLEASANT:

1. _____
2. _____
3. _____
4. _____
5. _____

NECESSARY TO THE FARMER'S WORK:

1. _____
2. _____
3. _____
4. _____
5. _____

STATE REPORT REQUIREMENTS THE PLAINS STATES

1. Product map
2. Map of the major cities (at least 10, including the capital).
3. Written report of the major agricultural products of the state.
4. Tell how other occupations have developed within the state.
5. Conservation methods that are very important to the state.
6. Pictures of the state bird, flag, tree, and flower.

EXTRA ACTIVITIES, MATERIAL YOU MIGHT WANT TO INCLUDE:

1. Brief history of the people of the state.
2. Short description of each of the major cities included on your map.
3. Topographical map of the state.
4. Special features of the state (facts you thought were interesting, but do not have to do with the rest of the report).
5. Pictures of your state.

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   d. Nebraska, From Its Glorious Past to the Present, 1967.
   e. South Dakota, From Its Glouious Past to the Present, 1966.
2. Wilder, Laura, The First Four Years, Harper and Row, 1971.

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Cunningham, Floyd, Edith McCall and Clarence Samford, You and Regions Far and Near, Benefic Press, 1964.

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FILMSTRIPS:
1. Conservation
2. Irrigation Farmer
3. Saving Our Land
4. Saving Our Wildlife
5. Wildlife Conservation

FILM:
"Big Harvest--the Story of Agriculture"

STUDY PRINT SET:
"America the Beautiful"

Unit Title: COASTAL REGIONS OF THE U.S.

I. Unit Overview: Man's development of all regions of the world has been dependent upon the topography and natural resources of each region. Bodies of water as a source of energy, transportation, and food have been significant factors in the development of coastal regions. Through the study of this unit, the students will learn how the topography and natural resources of coastal regions have influenced the agricultural and industrial development of these areas.

This unit will be presented to approximately 65 fourth grade students during a four week period.

II. Unit Content Outline:

A. Formation of Coastal Regions
   1. Ways in which coastal regions are formed
   2. Ways in which coastal regions are changed
B. Communication and transportation developments
   1. Transportation developments
      a. St. Lawrence Seaway
      b. Development of ports
   2. Communication developments
      a. Developments initiated by the telephone company
      b. Satellites
C. Fishing industry
   1. Ways of catching fish
   2. Occupations of a coastal community
D. Coastal community in relation to other communities
E. Products, industries, cities
   1. Farm products of southern and central Atlantic states
   2. Products and cities of the Gulf states
   3. Products and cities of the New England states
   4. Atlantic coast ports
F. Development of new United States coastal states
   1. Hawaii
   2. Alaska

III. Unit Objectives:

1. The child will be able to list ways in which a coastal region may be formed.
2. The child will be able to describe the effects of recent developments in communication and transportation on the lives of people in a coastal community.
3. The child will be able to orally summarize the importance of the fishing industry to most coastal communities.
4. The child will identify the major cities and products of the coastal states of continental U.S.
5. The child will be able to discuss orally the interdependence between coastal communities and other communities.

6. Given facts about the industries and natural resources in Alaska, the child will be able to predict future developments of the Alaskan frontier.

IV. Unit Description:

A. Criterion-Referenced Objectives:

1. The child will be able to illustrate by construction of a diagram the changes running water and glaciers produce in a coastal region.
2. The child will be able to compare and constrast submerging and emerging coastlines by giveing three characteristics of each.
3. The child will be able to state four changes wind and wave action produce by nature on a coastal region.
4. Given six words pertaining to the changes produced by nature on a coastal region, the child will be able to state their definitions.
5. The child will list and explain four general steps in the operation of the docks of the St. Lawrence Seaway.
6. The child will state at least one way in which the St. Lawrence Seaway improved water transportation between the Great Lakes and the Atlantic Ocean.
7. The child will be able to state five occupations which were affected by the development of the St. Lawrence Seaway.
8. The child will be able to list three reasons for the development of ports in harbors.
9. Given three developments in transportation networks between coastal and inland regions, the child will be able to state two results for each development.
10. The child will be able to describe the development of communication between coastal and inland regions and include in his description communication.
11. Given six words pertaining to communication and transportation development in the coastal communities, the child will be able to correctly define all of them.
12. The child will be able to orally describe three ways of catching fish including the equipment used for each method and two examples of fish caught in each method.
13. The child will be able to list ten occupations in a coastal region dependent upon the fishing industry.
14. The child will be able to illustrate the farm products of the southern and central Atlantic states, by filling in three products of each state on an outline map.
15. Given an outline map of the Gulf States the child will be able to illustrate three products of each state.
16. Given an outline map of the New England states, the child will be able to illustrate three products of each state.
17. The child will be able to list five Atlantic coast ports in the United States.
18. The child will be able to state five services provided the inland communities by the coastal community.

19. The child will be able to state five services provided for the coastal community by inland communities.
20. Given a specific change in a coastal community, the child will be able to list three effects on inland communities.
21. The child will be able to state three ways in which people living in coastal communities have adjusted to natural shortages of supplies.
22. The child will be able to list 15 occupations of the coastal states.
23. The child will be able to state three reasons for the development of the tourist trade in Hawaii.
24. The child will be able to list five occupations affected or created by the development of Hawaii as a tourist resort.
25. The child will be able to list three reasons for the development of government as the largest business in Hawaii.
26. Given a map of the western coast of the United States and the eastern coast of Asia, the child will plot one shipping route and one air route form the mainland United States to Asia, using Hawaii as a stopping place.
27. The child will be able to construct a product map of the state of Alaska, including at least five products and four natural resources.
28. Given a map showing both the natural resources and population of Alaska, the child will be able to state why a given city has developed in a specific area.
29. The child will be able to list three contributions of the natives and three contributions of the settlers to the development of Alaska.
30. Given a list of the most important occupations in present day Alaska and a list of the natural resources available, the child will be able to synthesize a list of five occupations which might develop as the frontier becomes more settled.

B. Learning Activities:
1. Discuss glaciers.
2. View filmstrips and films and discuss.
3. Diagram before and after effects of glaciers.
4. Discuss effects of running water.
5. Diagram before and after effects of running water.
6. Examine magazone pictures of coastal regions. Determine whether coast line is emerging or submerging by comparing its characteristics with those of the two categories.
7. Make bulletin board showing examples of both types of coast lines.
8. Resource person--personnel from Marine Station at Lewes.
9. Field trip--observe changes in Lower Delaware.

10. Discuss environmental occupations which have evolved from increasing concern for Delaware Wetlands.
11. Review of specific vocabulary: tide, coastal plain, cliff, submerging, emerging, beach.
12. Discuss purpose of lock system.
13. Diagram lock operation on board in class.
14. List steps in lock operation.
15. Examine map for natural water systems of U. S. and Canada.
16. Discuss occupations involved in construction and operation of the St. Lawrence Seaway.
17. Trip to the Wilmington Port Authority.
18. Play "A Fishing Game".
19. Complete outline on the three ways of catching fish.
20. Discussion based on field trip and previous learning activities.
21. Construct flow chart as a group with pictures of occupations in a coastal community (word sample sheet).
22. What's My Line--use activities directly related to fishing.
23. Examine various product maps of the southern and central Atlantic states.
24. Discuss most important products of each state.
25. Children construct map.
26. Make class map of the Gulf States and their products. Form groups to work on each of the states to form a more complete finished product.
27. State groups give brief oral reports to rest of the class explaining their findings.
28. Make individual maps using class map as a guide.
29. Child picks New England state with which he wishes to work.
30. Child gathers reference material on products of that state.
31. Informal reports made to rest of class by volunteers.
32. As reports are given, children draw products for each of the states on the outline map.
33. Children work with partners. Groups use maps of the U. S. to determine which of a list of 30 cities are coastal cities. From list of coastal cities, groups determine which would be the best places for a port.
34. Divide the occupations of a coastal community into those which provide goods and those which provide services.
35. Draw pictures depicting services provided for the inland communities by coastal communities.
36. Examine chart of occupations in a coastal community dependent upon fishing. Decide which other activities and occupations are necessary for comfortable living.
37. Children name one of the other occupations. If a service is involved, child records it on a class master list.
38. Role playing--reaction of various members of an inland community to a specific change.
    EXAMPLE: Week-long period of inclement weather strikes. Reactions of fishermen, shopkeepers, etc., should be portrayed as well as those of inland community.

39. Decide what child would do to obtain supplies not found in a coastal region by playing "What would you do if you needed . . ."
40. Role playing of various people in a coastal community. Reporter interviews these people.
41. Examine climate maps of Hawaii.
42. Examine and discuss magazine pictures of the Hawaiian Islands.
43. List occupational advantages to growing tourist industry.
44. Discuss related businesses: air traffic control, recreation, souvenir shops, hotels, etc.
45. Discussion to develop reasons for this growth.
46. Exercise in drawing inferences: "What other business areas would be affected by government influence in Hawaii?"
47. Examine pilot navigational maps to determine general patterns of air routes.
48. Use maps to establish temporary shipping and air routes.
49. Check map routes on a globe to determine the most logical routes.
50. Examine several different product maps of Alaska.
51. Discussion to determine the most important products and natural resources of Alaska.
52. Discussion--individual talents necessary to development of Alaska.
53. Discussion of facts already established about Alaskan economy.

C. Materials:
1. Study prints as classroom display--Glaciers.
2. Film loop Glaciers and Frozen Streams--supplementary.
3. Filmstrip--"The Story of Ice and Glaciers".
4. Text You and Regions Far and Near, pp. 90-91
pp. 88-93
pp. 87-91
p. 96
pp. 94-95
pp. 94-98
p. 103
5. Guest speakers.
6. Filmstrip--"Ontario and the St. Lawrence Seaway".
7. Film: "Seaport"
8. Individual student worksheets in chart form.
9. Film: "C.S. Long Lines"
10. Instructions for "A Fishing Game", text, page 123.
11. Poster paper for flow chart.
12. Magazines from which pictures of occupations can be obtained.
13. Wall maps.
14. Maps of individual states from books in classroom resource center.
15. Reference materials from classroom resource center.
16. Filmstrip--"New England Fisherman".
17. Maps of U.S.
18. Chart of occupations of a coastal community.
19. Chart of services provided by inland community.

20. Books and filmstrips from bibliography for children.
21. Film: "Hawaii"
22. Climate maps of Hawaii.
23. Navigational maps.
24. Globes.
25. Variety of white paper sizes, paints, crayons.
26. Map of Alaska showing natural resources and population.
27. Filmstrip--"Alaska--Discovery and Development"
"Alaska--The People and Their Ways of Life"
28. List of natural resources of Alaska.
29. Classified directory from Alaskan phone directory--important occupations could be derived from this.
30. Product map of Alaska.

D. Evaluation:
1. Diagrams of changes produced by running water and glaciers.
2. Child gives three characteristics of a submerging coast line and three characteristics of an emerging coast line.
3. Child will be able to state four changes wind and wave action produced by nature on a coastal region.
4. Given the list of six words, the child will state the acceptable definition of each of them.
5. Child lists and explains four general steps in the operation of the locks of the St. Lawrence Seaway.
6. Child states one way in which the St. Lawrence Seaway improved water transportation between the Great Lakes and the Atlantic Ocean.
7. Child state five occupations which were affected by the development of the St. Lawrence Seaway.
8. Child will be able to list three reasons for the development of ports in harbors.
9. Student completes chart on three developments in transportation.
10. Child lists three ways of communication between coastal and inland regions.
11. Given the list of six words, the child will state the correct definition of each of them.
12. Child orally describes the three ways of catching fish including the equipment used for each method and two examples of fish caught in each method.
13. Child list ten occupations in a coastal community dependent upon the fishing industry.
14. Completed map.
15. Child lists five Atlantic coast ports in the U. S.
16. The child states five services provided the inland communities by the coastal community.
17. Child states five services provided the coastal community by inland communities.
18. Given a specific change in a coastal community, the child lists three effects on inland community.
19. The child states three ways in which people living in coastal communities have adjusted to natural shortages of supplies.
20. Child lists 15 occupations of the coastal states.
21. Child will orally give three reasons for the development of the tourist trade in Hawaii.

22. Child lists five occupations affected or created by the development of Hawaii as a tourist resort.
23. Child list three reasons for the development of government as the largest business in Hawaii.
24. Child states in written form the reason for the development of a specific city.
25. Child lists three contirbutions of the natives and three contributions of the settlers to the development of Alaska.
26. Child lists five occupations which might develop as the frontier becomes more settled.

POST TEST:
(*items are the basis of the Pre-test)

*I. Match each of these words and their definitions.

_____cliff	a. a harbor where there is much shipping
_____beach	b. the coming in and going out of ocean water
_____submerging coastline	c. a large, slow-moving river of ice and snow
_____emerging coastline	d. a steep wall of rock
_____glacier	e. where the land is being covered by the ocean
_____coastal plain	f. a place along the shore sheltered from wind and waves
_____tide	g. where the land and water meet
_____port	h. broad stretches of sand
_____harbor	i. where the land is being exposed slowly
_____coast	j. a region of flat shoreline

*II. Match each of these ways of fishing with the equipment needed.

luring	net
snaring	hook and line
attacking	harpoon or spear

III. Give the following information.

1. What are the four general steps in the operation of the locks of the St. Lawrence Seaway?

*2. Name five Atlantic coast ports.

3. Tell two ways in which communication changes have helped the people of coastal communities.

4. Name and describe briefly three jobs in a port.

5. Tell three ways in which transportation changes have helped the people of coastal communities.

6. Give three services which the inland communities provide for the coastal communities or give three services which the coastal communities provide for the inland communities.

7. Tell three ways in which coastal communities have adjusted to natural shortages of supplies.

POST TEST:

*IV. Fill in the blanks to make each of the sentences true.

1. The major activity of the workers of the New England states is _____.

2. Granite and marble for building are found in large amounts in the state of _____.

3. One of the best fishing areas in the New England area is _____, near Newfoundland.

4. The food packing plants in New England are kept busy preparing four-fifths of the nation's _____ products for market.

5. Many people visit the New England area each year. These people are called _____.

6. _____ was a Scothman who became very rich and gave a great deal of his money to aid education and peace movements.

7. The rich soil of the Mid-Atlantic region encourages farming. The farming is _____ farming--people take their crops to nearby markets in this way.

8. Delaware's factories are involved in the processing of _____ and _____.

9. The farmland of the south is used for growing _____ and _____.

10. Texas and Florida grow most of the _____ used in the United States.

11. One of the special features of the harbors of Texas is that they were made by _____.

12. From the pine trees of the southern states, products such as _____ and _____ are produced.

13. The major oil-producing states of our nation are _____ and _____.

14. The largest business in Hawaii is _____.

15. Factors which have caused the development of the tourist industry are _____ and _____.

16. The major fish caught off the coast of Washington is _____.

17. Our nation's top fishing port is _____, California.

18. Many of the industries depend upon _____ for their power.

19. The fiftieth state was _____.

20. Some of the major industries in Alaska are _____, _____, and _____.

WILMINGTON PORT AUTHORITY FOLLOW-UP

CAREER EDUCATION ACTIVITIES

1. From Port Authority personnel department, obtain list of occupational opportunities at the port.

2. Ask representative workers from variety of occupations to provide an interview covering facts about their jobs. This may be completed in written form before the field trip.

3. After trip, have children list all the occupations they can remember. Relate jobs to each other.

4. Group related occupations:
   A. Before materials reach the port.
   B. At the port.
   C. After materials leave the port.

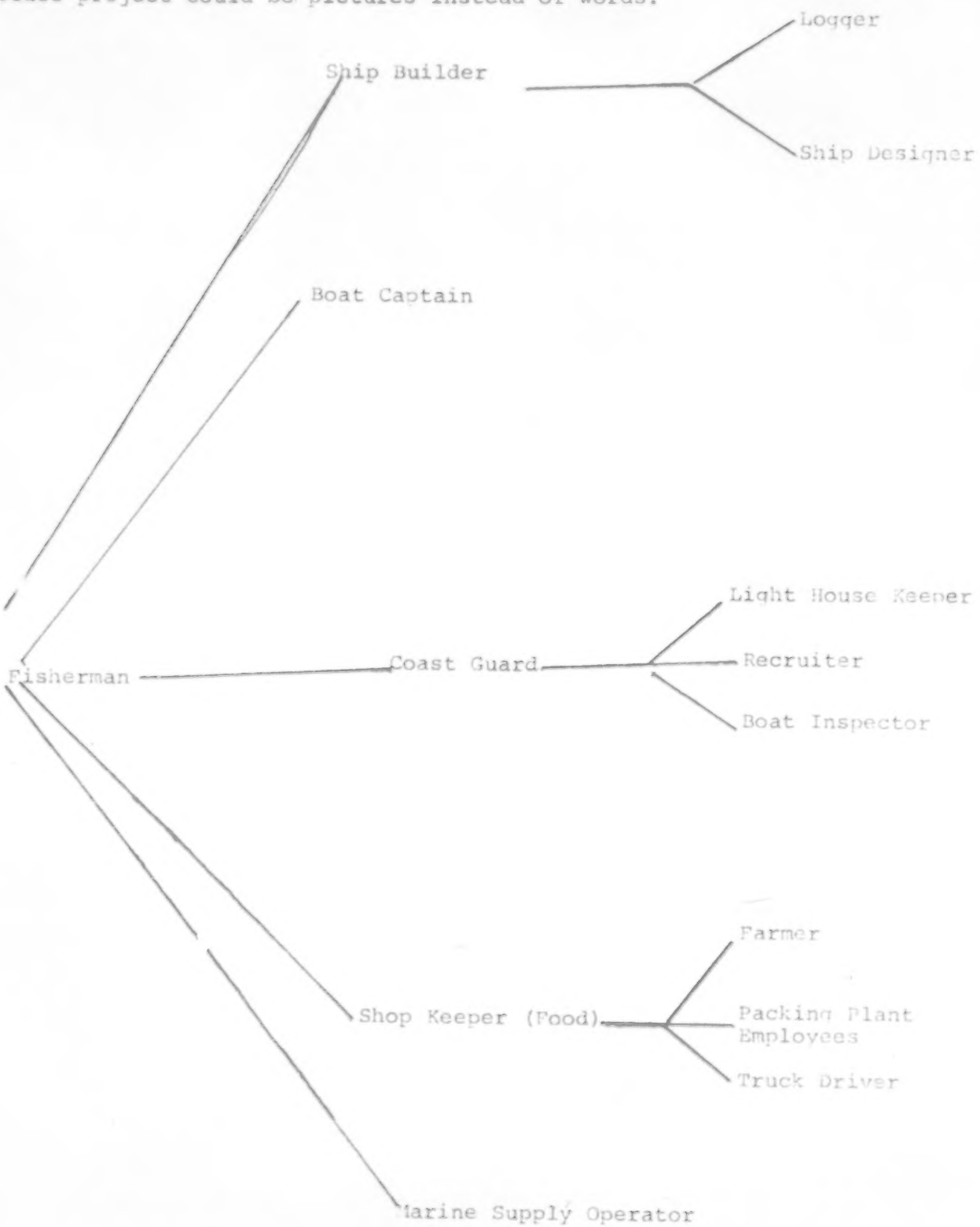
5. Make mural and/or individual pictures of the port showing men at work.

6. Role of a woman as port director.
   (Discuss if class interest develops in this area.)

DEVELOPMENTS IN TRANSPORTATION

DEVELOPMENT	RESULTS
1. Ship Construction Improved	1. Can carry more cargo
	2. Refrigerated storage areas prevent spoilage
2. Breakwaters built	1. Land protected from sea
	2. Artificial harbors created
3. St. Lawrence Seaway completed in 1959	1. Great Lakes cities became inland "ocean ports"
	2. Automobile industry more easily expanded

Incomplete sample of flow chart
Class project could be pictures instead of words.



LIST OF CITIES FOR MAP STUDY

1. Portland, Maine
2. Charleston, West Virginia
3. Raleigh, North Carolina
4. Knoxville, Tennessee
5. New York, New York
6. Philadelphia, Pennsylvania
7. Atlanta, Georgia
8. Boston, Massachusetts
9. Scranton, Pennsylvania
10. Columbia, South Carolina
11. Jacksonville, Florida
12. Springfield, Ohio
13. Oklahoma City, Oklahoma
14. Baltimore, Maryland
15. Montgomery, Alabama
16. Norfolk, Virginia
17. Salt Lake City, Utah
18. Fairbanks, Alaska
19. Seattle, Washington
20. Miami, Florida
21. Butte, Montana
22. Laredo, Texas
23. Savanna, Georgia
24. Albuquerque, New Mexico
25. Boulder City, Nevada
26. St. Paul, Minnesota
27. Wilmington, North Carolina
28. Albany, New York
29. Washington, D. C.
30. Chicago, Illinois

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7. Hornblow, Laura, Fish Do the Strangest Things, Random House, 1966.
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TEXT:
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FILMSTRIPS:
"Alaska--Commerce and Industry"
"Alaska--Discovery and Development"
"Alaska--The Land and Its People"
"Alaska--The People and Their Way of Life"
"Ontario and the St. Lawrence Seaway"
"The Seashore, a Continually Changing Environment"
"The Story of Ice and Glaciers"

FILM LOOP:
"Glaciers and Frozen Streams"

FILMS:
"U.S. Long Lines", Diamond State Telephone
"Seaport", Encyclopedia Britannica Films

STUDY PRINT SET:
"Glaciers"

Unit Title: DESERT REGIONS OF THE U.S.

I. Unit Overview: The original concept of a desert area was that of a barren wasteland. Recognition of the potential of some desert regions has changed this image. Development of farming and mining techniques especially for desert regions has stimulated further interest in them as productive areas.

The desert regions of the Unites States are beginning to more closely resemble other topographical regions. Advanced technology has made man's activities less dependent on the climate. The intent of this unit is to show the origins of this dependence and the ways in which man is harnessing the potential of the desert environment.

This unit will be presented to approximately 65 fourth grade students during a four week period.

II. Unit Content Outline:

A. Background information
   1. Characteristics of a desert region
   2. Kinds of deserts
B. Life on a desert
   1. Plant adaptations
   2. Animal adaptations
C. Men and desert regions
   1. Changing desert regions
   2. Desert Regions of the U. S.
      a. General facts
      b. Occupational opportunities

III. Unit Objectives:

1. The students will be able to state characteristics of a desert region.
2. The students will be able to cite examples of plant and animal adaptations to the desert environment.
3. The students will be able to explain the low population density of desert regions.
4. The students will be able to cite examples of ways that man-initiated changes in desert regions have made the regions more habitable.
5. The students will be able to demonstrate general knowledge about the desert regions of the U. S.
6. The students will be able to describe changes in occupational opportunities in desert regions as a result of the development of this kind of region.

IV. Unit Description:

Unit Objective #1: The students will be able to state characteristics of a desert region.

A. Criterion-Referenced Objectives:
1. The student will be able to define a desert region according to the amount of rainfall the regions receives a year.
2. The student will be able to state the names of the four kinds of deserts as described in the text.
3. Given a set of four pictures of desert regions, the student will be able to state the kind of desert being illustrated.
4. The student will be able to draw a diagram showing the reasons for desert-like land formations on the inland side of mountain.

B. Learning Activities:
1. View and discuss, as a class, filmstrip, "Deserts".
2. Collect pictures of the different kinds of deserts.

C. Materials:
1. Filmstrip, "Deserts"
2. pictures of different kinds of deserts

Unit Objective #2: The students will be able to city examples of plant and animal adaptations to the desert environment.

A. Criterion-Referenced Objectives:
1. The student will be able to list at least four examples of plants which live in desert regions.
2. The student will be able to list at least four examples of animals which live in desert regions.
3. Given a chart on which is stated four specific characteristics of desert region, the student will be able to complete the chart by listing at least two ways in which either plants or animals have adapted themselves to each characteristic.
4. Given a list of ten desert plants and animals and a list of the descriptions of each of the plants and animals, the student will be able to correctly match the items from the two lists.

B. Learning Activities:
1. View and discuss, as a class, filmstrips
   a. "The Deserts: An Example of Adaptation"
   b. "American Desert Animals"
2. View and discuss, as a class, films
   a. "The Desert Community"
   b. "Life in the Desert-North America"

C. Materials:
1. filmstrips and films as listed above in activities

Unit Objective #3: The students will be able to explain the low population density of desert regions.

A. Criterion-Referenced Objectives:
   1. Given information of the population of the United States, the student will be able to construct a population density map.
   2. Given a map of the desert regions of the United States, the student will be able to copy the regions on an individual outline map of the U. S.
   3. Given a map on the population density of the U. S. and a map of the desert regions of the U. S., the student will be able to compare and contrast the population density of the desert regions with that of the rest of the U. S.
   4. Given information on the population density of the desert regions of the U. S., the student will be able to explain in a paragraph at least three reasons for the relatively low population density of the U. S.
   5. The student will be able to state at least three characteristics of desert regions which might discourage the establishment of large communities.

B. Learning Activities:
   1. Use overhead projector to compare and contrast population density and desert areas of the U. S.

C. Materials:
   1. overhead projector
   2. transparencies of population density of the U. S. and desert areas of the U. S.

Unit Objective #4: The student will be able to cite examples of ways that man-initiated changes in desert regions have made the regions more habitable.

A. Criterion-Referenced Objectives:
   1. Given a picture of a desert community, the student will be able to state three examples of man-initiated changes on the original desert.
   2. The student will be able to state at least four ways in which man has changed desert regions to make them more suitable for farming.
   3. The student will be able to describe in paragraph form at least two ways in which dams have helped improve desert regions.
   4. The student will be able to list at least three ways that desert homes have been made more comfortable by modifications in construction.
   5. Given information on living standards in desert regions, the student will be able to plan and draw an example of an improvement in living conditions in desert regions which might be initiated in the year 2000.
   6. The student will be able to describe orally at least three improvements in transportation in desert regions.

B. Learning Activities:
1. Discuss changes that might develop in the future.

V. Unit Objective #5: The student will be able to demonstrate general knowledge about the desert regions of the United States.

A. Criterion-Referenced Objectives:
1. Given a list of five deserts in the United States, the student will be able to name the state or states in which they are found.
2. Given information on the products of the western desert states, the student will be able to construct a product map of the area.
3. The student will be able to list at least five large cities in the desert regions of the United States.
4. The student will be able to match a list of the names of six minerals found in the desert states with a list of the regions in which they are found.
5. The student will be able to describe in paragraph form at least two desert region resorts.
6. Given reference material on one of the deserts of the United States, the student will be able to write a report of at least 200 words on the desert. The report should include information on the location, products, industries, and ways of living of the people of the desert.
7. Having written a report on a desert in the United States, the student will be able to present an oral report on the desert to the rest of the class. The report should be at least three minutes long and include the required information from the written report.

B. Learning Activities:
1. Create class library of books on desert regions of the United States (see bibliography)

V. Unit Objective #6: The student will be able to describe changes in occupational opportunities in desert regions as a result of the development of this region.

A. Criterion-Referenced Objectives:
1. The student will be able to state at least three examples of occupations involving scientific study of plant and animal adaptations in the desert.
2. Given a list of ten occupations in a desert region, the student will be able to briefly describe in written form the work carried out by each of the workers.
3. The student will be able to list at least five examples of construction-oriented careers in desert regions.
4. The student will be able to write a correct business letter to an oil company in the United States which is engaging in mining operations in one of the desert states. The letter should request information on the

occupational opportunities available in the company, as well as information on the history of the company's development.

5. The student will be able to state at least three occupations which involve either oil or mineral mining in desert regions.
6. The student will be able to compare and contrast farming in the plains regions with farming in the desert regions by stating at least three ways in which they are different.
7. The student will be able to describe in paragraph form the occupational opportunities in a desert resort which one would not expect to find in other desert communities.

B. Learning Activities:

1. Discuss responses to business letters written to oil companies.
2. Create, through class discussion, a flow chart on occupations in desert communities. Use different colors of paper to show the fields represented.

Pre-Test

I. Check the characteristics of a desert region

_____ Little plant growth

_____ Lack of rainfall

_____ Low population density

_____ Little animal life

II. Name three plants and three animals which live in desert regions.

Plants	Animals
_____	_____
_____	_____
_____	_____

III. Underline the response which makes the sentence true.

1. Providing water for dry regions is called . . . . .
a) farming; b) conservation; c) irrigation; d) manufacturing

2. The Hoover Dam controls the water of the . . . . . .
a) California; b) Colorado; c) Mississippi; d) Red River

3. A mineral which is mined by using wells is . . . . . .
a) uranium; b) salt; c) oil; d) phosphorus

4. The continent which contains the most desert region is . . . .
a) Africa; b) Europe; c) North America; d) Asia

5. The animal which is most often raised in desert regions is the . . . . . a) cow; b) sheep; c) hog d) chicken

6. The largest desert in the world is the . . . . . a) Sahara; b) Mojave; c) Chihuahuan; d) Salt-Gila

7. Most of the desert regions of the United States are in the . . . . a) northeast; b) southeast; c) northwest; d) southwest

8. The Imperial Valley is in a) Nevada; b) California; c) Oregon; d) Arizona

9. Much of the Great Basin desert has been made into farmland by . . . . . a) farming; b) irrigation; c) tree planting; d) wind

10. The Imperial Valley obtains its water from the a) Roosevelt b) Mississippi River; c) Hoover Dam

IV. Match each of these desert states with its most important products:

a. California	_____	celery, sugar beets, tomatoes
b. Arizona	_____	date palms, lettuce, beans, oranges
c. Nevada	_____	salt
d. Utah	_____	cotton, alfalfa

V. Explain as well as you can why there is usually more rainfall on the coastal side of the mountain. You may draw a picture to help your explanation. You must, however, have a written explanation to get full credit.

EVALUATION - Post Test

I. Name the two main characteristics of desert regions.

_____

_____

II. Name the four kind of desert regions.

_____ _____

_____ _____

III. Using either words or a diagram, explain why there is usually more rain on the inland side of a mountain.

_____

_____

_____

_____

_____

IV. Tell at least three ways in which desert plants have adapted to their evnironment.

_____

_____

_____

_____

V. Describe how people of desert lands have made the land more suitable for farming. You should describe at least two different ways.

_____

_____

_____

_____

_____

Evaluation (continued)

VI. Underline the best answer to make each of these sentences true.

1. The reservoir for Hoover Dam is . . . . a) Lake Tahoe b) Lake Mead c) Lake Superior d) Lake Michigan

2. Hoover Dam was built to control the waters of the . . . a) Red River b) California River c) Colorado River d) Mississippi River

3. Mining in deserts includes mining an ore for atomic reactions which is a) uranium b) salt c) gypsum d) coal

4. The major mineral mined in Utah is . . . . a) uranium b) salt c) gypsum d) coal

5. The state which leads the nation in the production of lettuce, tomatoes, and celery is . . . . a) Delaware b) California c) Texas d) Arizona

6. One of the most fertile sections in California is an irrigated area called a) Death Valley b) Imperial Valley c) Gila Valley d) Great Basin

7. Reno and Las Vegas are both large cities in the state of a) Texas b) California c) Arizona d) Nevada

8. The Painted Desert is an important resort area in the state of a) Arizona b) Utah c) Nevada d) Texas

9. An animal commonly raised in the desert regions of Nevada is a) cattle b) sheep c) pigs d) chickens

10. Most of the desert regions in the United States is in the a) eastern b) western c) northern d) southern part of the country.

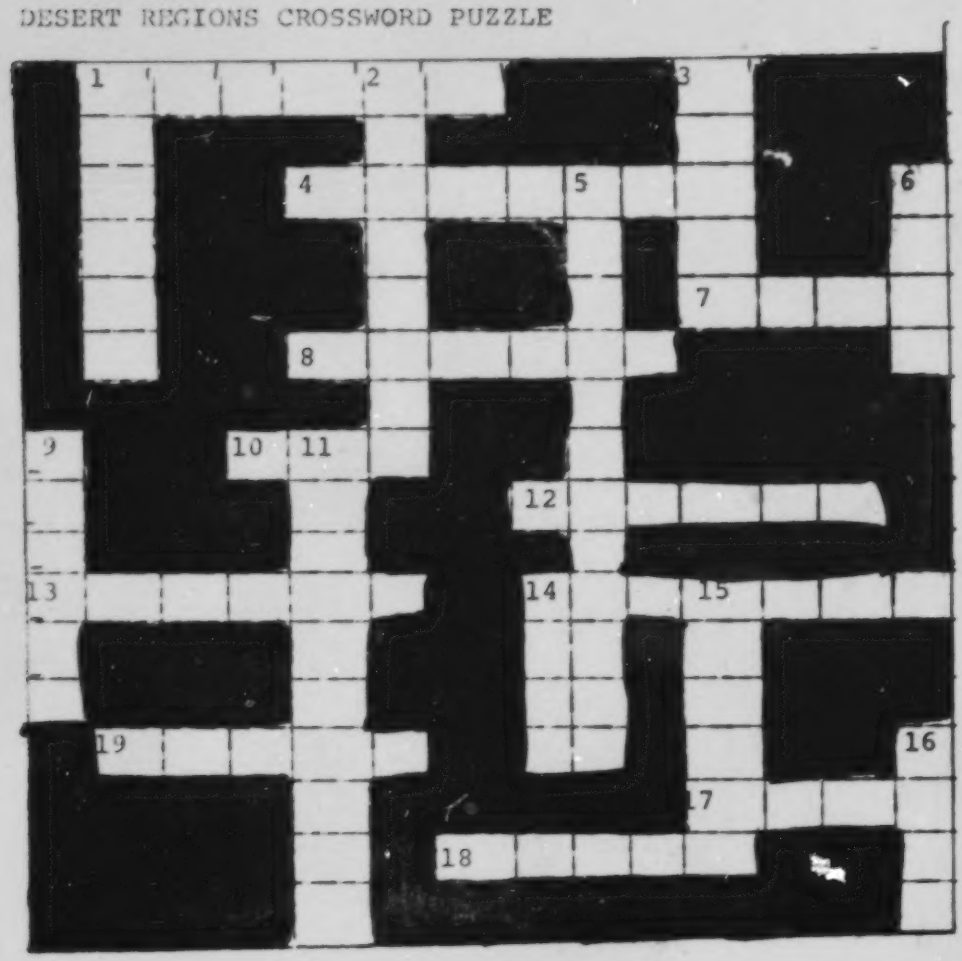
R	A	E	C	D	N	O	I	T	A	G	I	R	R	I
E	D	E	S	E	R	T	F	I	J	K	L	O	O	M
S	U	R	A	N	I	U	M	D	G	D	N	A	S	P
E	W	B	H	Q	R	M	S	A	H	M	N	D	P	E
R	X	Y	A	V	O	T	U	T	T	R	O	S	E	R
V	A	Z	R	J	B	I	F	E	G	T	H	I	J	I
O	D	C	A	M	E	L	L	P	M	L	U	K	A	A
I	E	V	A	S	C	P	O	A	O	N	J	N	R	L
R	E	D	N	C	Q	R	A	L	I	Z	A	R	D	V
S	T	A	W	Z	T	A	S	M	B	E	C	F	N	A
U	K	V	X	L	Y	U	I	C	D	H	K	G	U	L
E	Y	X	A	W	T	S	S	P	I	N	E	I	T	L
M	U	S	P	Y	G	V	U	P	O	N	L	K	J	E
R	O	A	D	R	U	N	N	E	R	Q	R	L	M	Y

DESERT BLOCK PUZZLE

Can you find all these things having to do with deserts?

desert	Sahara	lizard	irrigation	oil
spine	jackel	oasis	sand	Imperial Valley
road runner	gypsum	dam	resort	date palm
salt	reservoir	snake	tundra	
uranium	Mojave	camel	cactus	

DESERT REGIONS CROSSWORD PUZZLE



CROSSWORD PUZZLE CLUES

Across

1. a cold desert
4. small reptiles which live in the desert
7. a mineral mined in Utah
8. a dog-like animal of the desert
12. the name of the dam on the Colorado River
10. a miner mined by drilling wells
13. many oil wells are in Saudi _____
14. a radio-active mineral
17. walls built to hold back water
18. shelters built by the Mongols
19. skin homes of desert dwellers

Down

1. leaves of the cactus plant
2. the chief cause of deserts is the lack of _____
3. places on the desert where there is water and plants grow
6. one of the most important plants is the _____ palm
5. the stored water of a dam
9. a desert in California, Arixona, and Nevada
11. providing water for dry regions
14. the Great Salt Lake is in this state
15. desert people who wander from place to place
16. the continent with the greatest desert region

ANSWERS TO DESERT REGIONS CROSSWORD PUZZLE

ACROSS

1. tundra
4. lizards
7. salt
8. jackel
12. hoover
10. oil
13. Arabia
14. uranium
17. dams
18. yurts
19. tents

DOWN

1. thorns
2. rainfall
3. oasis
6. date
5. reservoir
9. Mojave
11. irrigation
14. Utah
15. nomads
16. Asia

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2. Clark, Ann Nolan, This For That, Golden Gate, 1965.
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5. The Desert, (Young Reader's Edition) Time, Inc., 1967.
6. Pond, Alonzo, Deserts, Silent Lands of the World, Norton, 1965.
7. Sutton, Felix, How and Why Book of Deserts, Grosset, 1965.

Films:
1. available through State Film Library
   a. Erosion-Leveling the Land
   b. The Desert Community
   c. Life in the Desert-North America
   d. Oasis of the Sahara

Filmstrips:
1. available in the school library
   a. American Desert Animals
   b. The Desert: An Example of Adaptation
   c. Deserts
   d. Irrigation
   e. Nothing Can Live Without Water

Unit Title: LIVING IN THE DESERT

I. Unit Overview: In this unit, the students study desert regions of the United States, Africa, Asia, South America, and Australia. During the study of these regions the students compare where the deserts are located, how they were formed, and how the people in each of the regions meet their needs. By approaching the study of deserts in this manner the students come to the understanding that all deserts are not sandy. The main thrust of this unit is the study of why people live in desert areas and how they manage to fulfill their needs. Career awareness is fostered through the study of man's interdependence--even in the simplest cultures.

II. Unit Content Outline:

A. Living in the desert
   1. American deserts
   2. the Sahara
   3. the Gobi Desert
   4. Australian Deserts

B. Desert regions of the earth
   1. Desert land
      a. cold deserts
      b. mountain deserts
      c. salt deserts
      d. sand deserts
      e. why deserts form
      f. desert animals
   2. Men change desert regions
      a. irrigation
      b. desert industries
      c. transportation
   3. Living in desert communities
      a. in the U. S.
      b. Asian
      c. Arctic region
      d. African

III. Unit Objectives: At the completion of the unit "Living in the Desert" the students will be able:
1. to identify four kinds of deserts
2. to describe the criterion for classification as a desert
3. to locate desert areas on a world map
4. to illustrate how plants have adapted to life in the desert
5. to illustrate how animals have adapted to life in the desert
6. to describe how desert areas form
7. to contrast present day life in the American desert areas with the life of the American Indian
8. to describe how irrigation is used in desert areas
9. to describe the way of life of nomad tribes in the Sahara Desert

10. to describe the way of life of the Mongols in the Gobi Desert
11. to describe the way of life of the desert tribesmen of Austrailia
12. to suggest how changes are taking place in desert regions

IV. Unit Description:

A. Criterion-Referenced Objectives:
1. Given background information on Indians in American desert areas the students will be able to list four ways in which they adapted to desert life.
2. Given the problem of describing how dams affect life in the desert, the student will be able to write a short paragraph which will include at least four of the following items:
   a. Provides electricity for homes and industry
   b. Provides irrigation water for crops
   c. Provides irrigation water for grazing land
   d. Provides water for use in homes
   e. Provides recreation areas
3. Given a list of desert tourist attractions the student will be able to list four occupations connected to the tourist industry. Among the four will be, 1) transportation, 2) food, 3) lodging services, 4) guides, 5) souvineer shops, 6) sanitation dept.

B. Learning Activities:
1. Read in text about Indian life in the American desert areas.
2. Construct models of adobe Indian dwellings.
3. Research: Find out what Indian tribes lived in the American desert areas and give a brief description of their lifestyle.
4. View film: The Story of Hoover Dam and discuss the affect of dams on desert areas.
5. Construct a diorama showing a desert area before irrigation and after irrigation.
6. Bulletin Board: Have students find pictures of desert areas under cultivation.
7. Film: A Trail for All Seasons - View film and discuss all the occupations connected with the tourist industry.

C. Materials:
1. construction paper
2. shoe boxes
3. straw, clay, water
4. glue
5. Film: The Story of Hoover Dam
   Bureau of Reclamation
   Film Management Center
   P.O. Box 25007
   Denver Federal Center
   Denver, Colorado 80225
   (Request two months in advance--pay return postage via parcel post)

6. Film: A Trail for All Seasons
Eastman Kodak Co.
Audio Visual Distribution
343 State Street
Rochester, NY 14650
(Book 6 weeks in advance--pay $50 insurance and return postage)

D. Evaluation: Following are two items from a quiz on the section: American Deserts
1. You have been studying life in American desert areas. In a short paragraph describe how they adapted their lives to the desert environment.
2. In a short paragraph explain how dams change life in desert areas.
3. The Grand Canyon and Petrified Forest are two popular tourist attractions in Arizona. List four occupations or services connected with the tourist industry.

A. Criterion-Referenced Objective: #2
1. Given background information on the Bedouins of the Sahara Desert and information about the people of the oasis, the student will be able to select two ways in which they depend on each other from a list of five.

B. Learning Activities:
1. Reading material from text and class discussion on interdependence.
2. Diorama: Construct a diorama of an oasis in a sandy desert.
3. Tasting party: Pass around samples of dates for the class to taste--discuss how important the date palms are to the people of the oasis.
4. Film: Green Sahara

C. Materials:
1. shoe box
2. glue
3. sand
4. construction paper
5. dates
6. Green Sahara
Public Service Audience Planners, Inc.
619 West 54th St.; 10th floor
New York, NY 10019
(Book well in advance--pay return postage)

Unit Title: LIVING IN MOUNTAIN REGIONS

I. Unit Overview: The development of early communities was dependent upon the topography of the region in which they were established. Mountain communities were generally slower to develop because of natural barriers which hindered communications with communities in other topographical regions. With advancements in transportation and communication, the mountain communities began to more closely resemble those of other topographical regions.

The intent of this unit is to trace the development of mountain regions in the United States from isolated communities to their present role in the total economic and social structure of the country.

This unit will be present to approximately 65 fourth grade students during a six week period.

II. Unit Content Outline:

A. Formation of Mountain Regions
   1. Ways in which mountain regions are formed
   2. Ways in which mountain regions are changed
      a. Natural changes
      b. Man-made changes

B. Development of Mountain Regions
   1. Transportation developments
   2. Communication developments
   3. Technological developments

C. Mountain regions of the world
   1. Topographical study
   2. Businesses and industries

D. Career oriented material
   1. Occupations unique to mountain regions
   2. Interdependence of occupations in mountain regions and other regions

III. Unit Objectives:

1. The students will be able to state ways in which mountains can be formed.
2. The student will be able to compare and contrast natural and man-made changes in mountain regions.
3. The students will be able to discuss orally factors which have hindered and contributed to the development of communities in mountain regions.
4. The students will be able to describe the improvements in transportation and communication on the development of mountain regions in the world.
5. The students will demonstrate general knowledge about the characteristics products of the mountain regions of the world.
6. The students will be able to state examples of occupations unique to mountain regions.

IV. Unit Description:

Unit Objective #1: The students will be able to state ways in which mountains can be formed.

A. Criterion-Referenced Objectives:
1. Given an outline diagram of an imaginary mountain and a list of five names of the parts of a mountain, the student will be able to correctly label the parts of a mountain on the diagram.
2. The student will be able to correctly define the words folding, faulting and volcano as they apply to earth movements and the formation of mountains.
3. The student will be able to construct a diagram which shows how the process of folding creates highland regions. The diagram should show this process in at least three steps.
4. The student will be able to construct a diagram which shows how the process of faulting creates highland regions.

B. Learning Activities:
1. Read text material pp. 188-190.
2. Discuss as a group study print set of earth movement.
3. View and discuss film: "Mountains-A First Film".
4. Set up classroom resource center of books, filmstrips, and other materials to be examined during free time. Fiction books which are connected to the material being studied would be used for stimulation of interest.

C. Materials:
1. Regions and Social Needs, pp. 188-190.
2. Study print set, "Earth Movements".
3. Film: "Mountains--A First Film" available through DPI film library.

Unit Objective #2: The student will be able to compare and contrast natural and man-made changes in mountain regions.

A. Criterion-Referenced Objectives:
1. The student will be able to state at least three changes in mountain regions caused by nature.
2. The student will be able to state at least three changes in mountain regions caused by man.
3. Given a list of ten changes in mountain regions, the student will be able to group them correctly under the heading; "Changes Produced by Man".
4. Given a list of ten changes in mountains, regions, the student will be able to group them correctly under the headings "Helpful" and "Harmful".

B. Learning Activities:
1. Discuss text material, pp. 161-163.
2. Discuss student experiences and observations involving changes in mountain regions.
3. Create bulletin board display of pictures illustrating changes in mountain regions. Group the illustrations under Man-made and Natural Changes.
4. Label each of the pictures in the bulletin board display "Helpful" and Harmful".
5. Invite a conservationist to discuss with the class the implications of man-initiated changes on the natural processes of erosion. The students could interview the speaker on his job background and responsibilities.

C. Materials:
1. Regions and Social Needs
2. Film: "Why Do We Still Have Mountains" available through DPI film library.

Unit Objective #3: The students will be able to discuss orally factors which have hindered and contributed to the development of communities in mountain regions.

A. Criterion-Referenced Objectives:
1. The student will be able to orally state at least three ways in which mountain people must overcome natural difficulties.
2. The student will be able to write a paragraph describing the need for efficient land use by farmers in mountain regions. The paragraph should contain at least three ways in which these people employ scientific farming principles.
3. The student will be able to write a correct business letter to a resort city in a mountain region of the U. S. asking for information about the kinds of recreation available and the development of that city as a recreational area.
4. Given information on a resort area in the U. S. the student will be able to give an oral report to the class describing the facilities of the resort and summarizing the development of the area as a resort.
5. Given information on a mountain resort in the U. S., the student will be able to design and draw an original travel poster for the resort.

Unit Objective #4: The students will be able to describe the improvements in transportation and communication on the development of mountain regions in the world.

A. Criterion-Referenced Objectives:
1. The student will be able to state at least three examples of transportation methods used in mountain regions.
2. The student will be able to list at least three examples of communication methods used in mountain regions.
3. Given a set of eight pictures illustrating transportation and communication methods used in mountain regions, the student will be able to name being used in picture.

4. Given a list of ten methods of transportation, the student will be able to correctly group them under the headings, "Transportation in Mountain Regions" and "Transportation in Other Regions".

5. Given a topographical map of an imaginary mountain region, the student will be able to state the methods of transportation he or she would use to get from one specific point on the map to another. Acceptability of the responses will be determined by group consensus.

B. Learning Activities:
   1. Gather pictures from a variety of sources on transportation and communication methods.

Unit Objective #5: The student will demonstrate general knowledge about the characteristics and products of mountain regions of the world.

A. Criterion-Referenced Objectives:
   1. The student will be able to list at least three minerals found in the Rocky Mountains.
   2. Given the names of four grain crops grown in the northern Rockies, the student will be able to state orally at least one use for each product.
   3. The student will be able to state at least three dangers encountered by miners in the mountain regions.
   4. The student will be able to complete a chart about products of the lumber industry.
   5. The student will be able to write a correct business letter to a paper manufacturing company. In the letter, the child will include questions about the company's sources of pulp, conservation programs and the occupational opportunities of the company.
   6. The student will be able to write a report of at least 100 words about a dam in a mountain region. The report will include information on the location, size, and significance of the dam.
   7. The student will be able to list three recreational activities in which people could take part in a mountain region.
   8. Given a topographical map of the U. S. on which the national park areas are marked, the student will be able to name at least five parks which are in mountain regions.
   9. Given three mountain regions from which to choose, the student will be able to complete the requirements for study on one of the mountain regions of the world.
   10. In an open class discussion the student will be able to state at least one fact about the mountain region he or she studied in CRO #9.

Requirements for study on one of the mountain regions of the world.

ALPS

1. Given an outline map of Europe, the student will be able to color the area of the Alps Mountains.
2. Given a list of five objective questions about Mt. Blanc, the student will be able to correctly answer at least four of the questions.
3. The student will be able to orally describe the cause of an avalanche.
4. The student will be able to state the effects of the Simplon tunnel on travel in Switzerland.
5. The student will be able to list at least three activities of tourists in the Alps.
6. Given a list of five vocabulary words involving the Alps, the student will be able to correctly define all five of them.
7. The student will be able to name four products of the Alps.
8. The student will be able to orally discuss the opportunities for development of handcrafts in the Alps.
9. The student will be able to write a 100 word report about farming in the Alps, including information about size, crops, livestock, equipment and problems.
10. Given a worksheet on which there are ten questions about the government of Switzerland, the student will be able to correctly answer eight of them.

ANDES

1. Given an outline map of South America, the student will be able to locate and label the Andes, the altiplane and Lake Titicaca.
2. The student will be able to describe orally at least two ways in which the homes of the Aymara Indians were made specifically for the climate of the altiplane.
3. The student will be able to name three crops raised by the Aymara Indians.
4. The student will be able to draw a picture showing the clothing of the Aymara Indians.
5. The student will be able to write a 50 word summary of the old ways still practiced by the Aymaras.
6. Given five statements about Aymara fiestas, the student will be able to correctly identify the false statements.
7. Given a worksheet on which there are ten questions about llamas, the student will be able to answer eight of the questions correctly.
8. The student will be able to state at least two ways in which the Spanish had some effect on the lives of the Aymara Indians.

HIMALAYAS

1. Given an outline map of Asia, the student will be able to outline and color in the area covered by the Himalayas.
2. The student will be able to state at least three reasons for the low population of the Himalayas.
3. The student will be able to describe the effects of the Himalayas on the climate of Tibet either orally or in writing.
4. Given a worksheet on which there are ten questions about the lifestyles of Sherpas, the student will be able to correctly answer at least eight of them.
5. The student will be able to write a report of at least 50 words about the yak and its importance to the Sherpas.
6. The student will be able to discuss orally at least three reasons for the lack of modernization in Sherpa lifestyles.
7. The student will be able to state at least two ways the Sherpas have adapted their lifestyles during the winter to the environment.
8. Given four stories about Himalayan Mountain expedition, the student will be able to choose and read a story.
9. Having read a story about a Himalayan Mountain expedition, the student will be able to discuss orally at least three effects of the environment on the events of the story.

Unit Objective #6: The students will be able to state examples of occupations unique to mountain regions.

A. Criterion-Referenced Objectives:
1. The student will be able to write a correct business letter to the circulation department of a newspaper published in a mountain region requesting a copy of the newspaper for use in the classroom.
2. Given a copy of a newspaper published in a mountain state, the student will be able to list at least four kinds of information that are found in the classified section of that newspaper.
3. Given a copy of a newspaper published in a mountain state, the student will be able to list at least 20 different occupations named in the classified advertisements under the "Help Wanted" sections.
4. Given a list which the student has developed of 20 different occupations in a mountain region, the student will be able to identify those occupations from his or her list which are unique to mountain regions.
5. The student will be able to draw a picture of at least one example of an occupation unique to a mountain region.
6. The student will be able to complete a job application for a specific occupation unique to mountain regions. The information given on the application need not be factual. The completed application will be evaluated on the basis of neatness, information completion, and appropriateness of information given for the job opening sought.
7. Given an application blank specifically designed for classroom jobs, the student will be able to complete the application for a specific job. The information given on the application must be factual.
8. Given a group of application blanks which have been completed by a student for a specific classroom job, the student will be able to pick out at least one application the information on which indicates the student's suitability for the job.

B. Learning Activities:
1. Examine a variety of newspapers to determine the location of the classified advertisements. Read the job advertisements out loud to allow the children to become more familiar with terminology used.
2. Create a display of job applications. Discuss the common elements of the applications. Point out unique elements of several applications--information sought, format, language.
3. Write letters to western mountain state newspapers asking for copies of the papers--class project. A form to follow for the letters should be developed. Guidelines for the letter writing should be posted in the room.

4. Develop a class job application for jobs within the classroom. Use form developed to set up a class employment office. Students will complete the form for a specific job opening. A class employment agency will decide on the most qualified applicant for the position.
5. Throughout entire unit, view and discuss films on mountain regions of the U. S.

C. Materials:
1. newspapers from western mountain states
2. blank job applications form, a variety of sources
3. films: Geography of New England
Geography of the Rocky Mountain States
The Pacific Northwest
Geography of the Pacific States
*all films available through DPI Film Library

MOUNTAIN COMMUNITIES PUZZLE

Can You Find All The Words?

A	B	A	R	R	I	E	R	K
P	A	W	E	G	I	I	J	T
P	D	A	F	R	H	M	L	L
A	C	I	R	E	S	U	R	T
L	A	A	G	H	A	I	J	V
A	B	L	U	F	F	I	K	O
C	L	E	N	M	O	C	L	L
H	E	A	O	R	L	E	G	C
I	P	L	Q	S	D	T	L	A
A	S	E	Q	U	O	I	A	N
N	E	F	Y	T	F	M	C	O
S	I	A	E	F	U	B	I	Z
T	K	L	L	V	N	E	E	T
U	C	L	L	X	Y	R	R	R
N	O	Z	A	R	K	L	B	O
N	R	Z	V	E	N	I	L	S
E	N	I	L	W	O	N	S	E
L	K	A	N	O	T	E	T	R
S	Y	E	L	N	I	K	C	M

Waialeale
Cliff
Sequoia
Timber line
McKinley
Snow line
Bluff
Appalachians
Rockies
Ozark
volcano
fault
fold
barrier
Teton
Glacier
valley
tunnel
cable
resort
ski
fall
line
ice

Pre Test Item:

I. Label the parts of this mountain:

1. _____
2. _____
3. _____
4. _____
5. _____

II. Match these mountains or mountain ranges and their descriptions.

_____	Lasen Peak	a.	the mountain range which covers much of the east coast
_____	Mt. Whitney	b.	the highest mountain in California
_____	Green Mountains	c.	a mountain range of Vermont
_____	Mt. Waialeale	d.	the mountain range which breaks the flat middle western plain
_____	Mt. McKinley	e.	one of the wettest places in the United States
_____	Teton Range	f.	the highest mountain in the United States
_____	Appalachian Mtns.	g.	a mountain range in New Hampshire
_____	Ozark Mountains	h.	an active volcano
_____	White Mountains	i.	a part of the Rockies which is in Wyoming

III. Tell whether each of the changes were caused by man or nature by putting a M for man or a N for nature.

_____	1.	roads are built	_____	6.	rivers erode the mountain side
_____	2.	a volcano erupts	_____	7.	homes are built
_____	3.	tunnels are dug	_____	8.	animals graze
_____	4.	planting of crops	_____	9.	avalanche
_____	5.	strong winds cause erosion	_____	10.	a glacier moves across a mountain

IV. Make each of these a true sentence by adding the correct words or word.

1. A _____ is a machine which changes water power into electricity.
2. Mountains are formed by _____, _____, and _____.
3. A _____ is a vacation area in the mountains.
4. The sharp change in elevation which was once a barrier to water transportation is called the _____ line.
5. The Allegheny Mountains are found in the state of _____.
6. The most important mineral in atomic research is _____.
7. The greatest _____ mining center is near Butt, Montana.
8. The first national park discovered in the U. S. was _____ _____ National Park.
9. This beautiful region was discovered by _____.
10. One of the interesting parts of this park are the _____ _____ which are fountain-like hot springs.
11. The Hawaiian Islands are really _____.
12. Two of the most important crops of the Hawaiian Islands are _____ and _____.

V. Tell whether each of these statements are true or false. Use T for true and a F for false.

1. The coastal side of most mountains is wetter than the inland side. _____
2. The Adirondack Mountains are in New York. _____
3. The highest mountain in North America is Alaska. _____
4. Faulting and folding are caused by great pressure inside the earth. _____
5. Citrus Fruits are grown in the valleys of the Los Angeles ranges. _____

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A. Books:
1. Hiser, Iona Seibert, The Mountain Lion, Steck-Vaughn, 1970.
2. Miles, Miska, Gertrude's Pocket, Little, Brown, 1970.
3. Hoagie's Rifle Gun, Little, Brown, 1970.

B. Films:
1. DPI Film Library
   Geography of New England
   Geography of the Pacific States
   Geography of the Rocky Mountain States
   Mountains--A First Film
   The Pacific Northwest
   Why Do We Still Have Mountains
2. Newark School District Film Library
   Todd--Growing Up in Appalchia

C. Filmstrips:
1. Available through the School Library
   High and Low Lands
   Irrigation
   Life in a New England Town
   National Park Service Areas of the Pacific Coast and Northwest
   New England Fisherman
   Orange Grower
   Saving Our Land
   Story of Mountains, The

D. Study Print Sets:
1. Available through school library
   Earth Movements

Unit Title: CAREERS IN OTHER REGIONS OF THE U.S.

I. Unit Overview: Using the study of Delaware and the fourth grade social studies curriculum as a resource, the student will extend his awareness to other areas of the U. S. Through individual and group work, each student will study another part of the U. S. in order to compare and contrast it to Delaware. As one section of this study, each student will explore various careers available in one other state or region of the U. S. The student will then attempt to discover the reasons for these occupations being located in that area.

II. Unit Content Outline:

A. Careers available in one other area of the U. S.
   1. Agriculture
   2. Industrial
   3. Recreational
   4. Service (Professions)
   5. Military

B. Factors in job availability in this area.

III. Unit Objectives: The student will be able to:

1. name and describe various careers available in one particular state or region of the United States.
2. explain what factors have determined the kinds of work available to the people in one particular state or region of the U. S.

IV. Unit Description:

Unit Objective #1: The student will be able to name and describe various careers available in one particular state or region of the U. S.

A. Criterion-Referenced Objective:
   1. Each student or group of students will present to the class the titles and the duties associated with that title of at least five careers, where available, in a chosen state or region of the U. S. in each of the following areas:
      a. Agriculture
      b. Industry
      c. Military
      d. Recreation
      e. Service (Profession)

B. Learning Activities:
   1. Each student will pick a state to do a large researched notebook. As one chapter, the student will include a list of at least five jobs (where available) found in his state in each of these categories: Agriculture, Industry, Military, Recreation, and Service. Each student will also describe the duties of each occupation named.

OR

1. Divide the class into groups of four students each. Each group will do a notebook on a particular region of the U. S. As one chapter, the group will include a list of at least five jobs (where available) found in that region in each of these categories: Agriculture, Industry, Military, Recreation, and Service. Each group will also describe the duties of each occupation named.
2. Each student will write a letter to his state asking for information on career opportunities in that state.

OR

2. Each group of students will write business letters to the states in their region asking for information on career opportunities in that state.

3. In Elective Art, each student or group of students will do a cover in three-dimension for their report depicting the various jobs located in that area.
4. Each student or group of sutdents will present his report to the class.
5. Each student or group of students will do projects or pictures of these careers to use in their presentations if they so choose.

Unit Objective #2: The student will be able to explain what factors have determined the kinds of work available to the people in one particular state or region of the U. S.

A. Criterion-Referenced Objective:
   1. Each student or group of students will present to the class at least one environmental or cultural factor contributing to the availability of particular types of careers found in the state or region of the U. S. which they are studying.

B. Learning Activities: The learning activities of this objective will be a continuation of the learning activities in the previous unit objective.
   1. In each notebook will be a section describing the effects of at least one environmental or cultural factor in the existance of the careers mentioned in the previous unit objective. Each student or group of students will present his research to the class.
   2. Each student or group of students may do projects or pictures to illustrate these effects if they so choose.

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Teachers Books:

1. Free and Inexpensive Learning Materials, Division of Surveys and Field Services, George Peabody College for Teacher, 1972.

Children's Books:

1. Carpenter, Allan, Enchantment of America Series, Children's Press, 1967.
2. Childcraft, Field Enterprises Educational Corporation, 1968.
3. Compton's Pictured Encyclopedia, William Benton, 1964.
4. Hanna, Paul R., et.al. In All Our States, Random House, 1967.
5. Lauber, Patricia, The Look It Up Book Of The 50 States, Random House, 1967.
6. Merit Students Encylopedia, Crowell-Collier Educational Corporation, 1967.
7. New Book of Knowledge, Grolier Inc., 1969.
8. The World Book Encyclopedia, Field Enterprises Educational Corporation, 1972.
9. Urdang, Lawrence (editor), Official Associated Press Almanac Publishing Corp., Inc., 1971.

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1. United States Transparencies, T58-T107.

Unit Title: THE WORLD OF WORK IN DELAWARE

I. Unit Overview: The reasons for establishing business in Delaware are numerous. Mild climate, superior water transportation networks, and a central location in the Bowash megalopolis are only three of the factors which have encourage continual growth of the economy of the state. As the number of businesses operating in Delaware increases, the composition of the working force becomes even more varied. This unit is designed to be an introduction to some of the occupational opportunities available within Delaware and their significance to the Delaware World of Work.

The unit activities and concepts will not be presented as a total unit. Material will be integrated into units on the four regions of the United States. In this way, the relationships between our state and other states will be established.

An important part of the study of Delaware by fourth grade students, this unit will be presented to approximately sixty-five students.

II. Unit Content Outline:

A. Factors influencing economic growth
   1. Location
   2. Climate
B. Agricultural Industry
   1. Influence of scientific farming
   2. Crops
   3. Food processed in Delaware
   4. Migrant workers
C. Manufacturing industries
   1. General facts
   2. Industries in specific Delaware communities
D. Government
   1. Structure
   2. Related occupations
   3. Government agencies which help the worker and his employer
E. Recreation
   1. Facilities in Delaware
   2. A specific recreational area--Rehobeth Beach
      a. Development as a resort area
      b. "Rehobeth Beach--The Nation's Summer Capital"

III. Unit Objectives:

1. The child will be able to discuss the factors influencing the economic growth of Delaware.
2. The child will be able to describe the role of agriculture in the economic growth of Delaware.
3. The child will be able to give examples of products produced by Delaware industries.
4. The child will be able to summarize the recreation--related occupations of Delaware.
5. The child will be able to discuss the economic growth in each county.
6. The child will be able to describe the influences of state and local government on the economic growth of Delaware.

IV. Unit Description:

A. Criterion-Referenced Objectives:

1. The child will be able to give two characteristics of the state's climate which have influenced the economic growth of Delaware.
2. The child will be able to state three specific examples of transportation networks that have encouraged the development of many industries in Delaware.
3. Given a list of ten statements related to changes in farming as a result of improved agricultural efficiency, the child will be able to identify the true statements.
4. The child will be able to list ten crops grown in Delaware.
5. The child will be able to list five food products processed and marketed in Delaware.
6. The child will be able to describe the role of the migrant worker in Delaware agriculture, including three effects of his presence on the state economy.
7. Given a test of 25 multiple choice items on the occupational activities in Delaware, the child will be able to correctly answer 18 of them.
8. Given data on the major industries of each Delaware county, the child will be able to state the general nature of the economic activity in each of the three counties.
9. The child will be able to describe in written form one specific Delaware industry, including kinds of workers employed, reason for establishing operations in Delaware, product or services of the company, and examples of other industries which depend upon the given industry.
10. Given two lists, on of ten Delaware industries and one of the products of those industries, the child will be able to correctly match the product with the appropriate industry.
11. Given representative samples of occupations of five school communities in Delaware, the child will be able to summarize the basis of the economy of each community.
12. The child will be able to state the three branches of government and the responsibility of each one.
13. The child will be able to state five occupations of government workers in Dover.
14. The child will be able to describe the protection provided by government agencies for both the employer and employee, giving examples of at least three areas in which the government is active.
15. The child will be able to state three functions of a zoning board.
16. The child will be able to state four recreational areas which have been developed throughout the state.
17. The child will be able to list three ways in which the businesses in Rehobeth have changed or are changing as a result of the development of Rehobeth as a resort area.
18. The child will be able to explain orally the phrase "Rehobeth Beach--The Nation's Summer Capital", giving three reasons for its appropriateness.

3. Learning Activities:
   1. Gather data on the average monthly temperature in Delaware and the growing season.
   2. Discuss personal observations of the weather in Delaware and its effect on agricultural and other industries.
   3. Examine map from Chamber of Commerce booklet on Delaware's location and discuss.
   4. Interview farmers active in Delaware, people who were active in Delaware.
   5. Examine and discuss product maps of Delaware.
   6. Discuss other crops which are grown but do not appear on product maps--include reason for their emission.
   7. Make individual product maps of Delaware.
   8. Review food products of Delaware.
   9. Gather food labels of products processed in Delaware.
   10. Make classroom display of labels, including map showing area in which they were processed.
   11. Guest speaker either from Green Giant or other representative company which employs migrant workers.
   12. Read and discuss pp. 45-52, Introduction to Delaware.
   13. Write letters to specific industries, determined by the class, asking for background information which would include above information.
   14. Discuss similarities and differences between various industries on the basis of information received.
   15. Have children name an industry, then pick another child to name a product connected with that industry.
   16. Obtain parent survey of occupations from five schools throughout Delaware.
   17. Discuss information provided by survey sheets, list occupations from each school.
   18. Examine information on state system of government from League of Women Voters and state offices.
   19. Discuss interaction between three branches of government.
   20. Guest speaker from Delaware Legislature--discuss role in the state government and work of others upon which he is dependent.
   21. Information from Legislative Hall on the different occupations involved in carrying out the state activities.
   22. Chart relating the workers to other workers in the government.
   23. Study, through research and discussion, the role of the government in providing and insuring better working conditions, etc.
   24. Discuss situations which might arise without government protection for employers and employees.
   25. Discuss purposes of a zoning board.
   26. Discuss zoning of school neighborhood--what developments might this encourage.
   27. Examine and discuss pamphlet, "Adventures Out-of-Doors in DELAWARE."
   28. Relate personal experiences throughout the state in recreational areas.

29. Map at least four recreational areas on outline map of the state.
30. Discuss personal observations on business--related changes in Rehobeth.
31. Examine and discuss Chamber of Commerce materials.
32. Examine and discuss pictures of Rehobeth.
33. Relate geographical location significance to city's developments as a tourist center.
34. Discussion of first-hand observations of Rehobeth from children.

C. Materials:
1. Reference material on the average monthly temperature in Delaware and the growing season length.
2. Map form Chamber of Commerce Booklet "Delaware-The First State is a First Choice for Location".
3. Review source for scientific farming, You and Regions Far and Near, pp. 133-134. "Plains Communities of the United States" information.
4. Product maps of Delaware for class examination.
5. Transparencies of products of Delaware.
6. Individual outline maps of the state.
7. Food labels of products processed in Delaware.
8. Poster board display.
9. Map of Delaware suitable for display region.
10. Supplementary material would include pictures of migrant workers, if children are able to find them.
11. Introduction to Delaware (text).
12. Letters of pamphlets from Delaware industries.
13. Completed parent-survey forms of occupations from five schools in Delaware.
14. Information of state government organization and operations.
15. Information from Dover on people employed in Legislative Hall.
16. Poster board for chart.
17. Reference material from government agencies dealing with occupational guidance.
18. Explanatory material from zoning board.
19. Pamphlets "Adventures Out-of-Doors in DELAWARE".
20. Individual outline maps of the state.
21. Reference material from Rehobeth Chamber of Commerce.
22. Pictures of Rehobeth.
23. Map of the eastern seaboard for comparison of geographic location of Rehobeth to that of other cities.

D. Evaluation:
1. Child lists two characteristics of the climate in Delaware which have influenced the economic growth of the state.
2. The child states three specific transportation networks that have encouraged the development of many industries in Delaware.
3. Child identifies the true statements from a list of ten statements related to the changes as a result of improved agricultural efficiency.

4. Child lists ten crops grown in Delaware.
5. Child lists five food products processed and marketed in Delaware.
6. Child describes, either orally or in written form, the role of the migrant worker in Delaware agriculture, including three effects of his presence on the state economy.
7. Child correctly answers 18 out of 25 multiple choice items from a test on occupational activities in Delaware.
8. Child states the general nature of the economic activity in each of the three counties.
9. The child describes in written form one specific Delaware industry, including kinds of workers employed, reason for establishing operations in Delaware, products or services of the company, and examples of other industries which depend upon the given industry.
10. Child correctly matches the items from the list of industries and the list of products.
11. Child summarizes in a paragraph form the basis of the economy of each of five school communities, using information provided by parent-survey forms of occupations.
12. Child states the three branches of government and the responsibility of each one.
13. The child states five occupations of government workers in Dover.
14. Child describes the protection provided by government agencies for both the employer and employee, giving examples of at least three areas in which the government provides protection.
15. Child states three functions of a zoning board.
16. Child states four recreational areas which have been developed throughout the state.
17. Child lists three ways in which businesses in Rehobeth have changed or are changing as a result of the development of Rehobeth as a resort area.
18. Child explains orally the phrase "Rehobeth--The Nation's Summer Capital", giving three reasons for its appropriateness.

POST TEST *
(*Items are those which would be used for the Pre Test)

*I. Match each of these companies and the product they produce by placing the letter of the product in the blank before the company's name.

_____ Dupont	a. fabrics
_____ International Latex	b. automobile assembly
_____ King Cole	c. space suits
_____ Chrysler	d. oil refining
_____ Getty	e. chemicals
_____ Avon	f. sales and service of airplanes
_____ Westvaco	g. newspaper publication
_____ Atlantic Aviation	h. chemicals
_____ Everfast Mill	i. food processing
_____ News Journal	j. paper containers

*II. Match each of these cities with the description by writing the letter of the description on the line next to the city's name.

_____ Rehobeth Beach	a. chemical Capital of the World
_____ Wilmington	b. processes fruits and vegetables
_____ Newark	c. one of the world's largest fishing ports
_____ Milford	d. "The Nation's Summer Capital"
_____ Dover	e. center of the state government
_____ Lewes	f. home of the Chrysler Assembly Plant

III. Tell which branch of the government is responsible for each of these activities.

1. Makes the laws _____
2. Enforces the laws _____
3. Interprets the laws _____

IV. Answer each of these questions as completely as possible.

1. Tell two ways in which the climate of Delaware has affected the economic growth of the state.

_____

_____

_____

2. Name three specific transportation networks which have encouraged the development of many industries in Delaware.

_____

_____

_____

*3. Name four recreational areas in Delaware.

_____ _____

_____ _____

*4. Give five examples of workers which would be employed by our state.

_____ _____

_____ _____

_____

*5. Tell three ways in which the government helps the workers in Delaware.

_____

_____

_____

*6. Name five food products processed and marketed in Delaware.

_____ _____

_____ _____

_____

*IV. Circle those crops which are important to the agricultural market in Delaware.

soybeans rice peanuts corn

oranges fruit wheat tobacco

V. Discussion Questions--Answer two of these questions as completely as possible.

1. How has Rehobeth changed and how is it changing as a result of the development of Rehobeth as a resort area?

2. What is the purpose of a zoning board? How does it help the people of Delaware?

3. What are migrant workers? How do they affect agriculture in Delaware?

TEST

Underline the word or words which make each sentence true.

1. The main occupation in New Castle County is a) fishing b) farming c) manufacturing d) shipping

2. The main occupation in Kent and Sussex Counties is a) fishing b) farming c) manufacturing d) shipping

3. The main animal raised on Delaware's farms is the a) horse b) chicken c) cow d) sheep

4. One of the most recently developed crops in Delaware is a) soybeans b) corn c) wheat d) rice

5. Most of the corn produced in Delaware is used for a) chicken feed b) flour c) popcorn d) food for people

6. Dairy farming is most important in _____ County. a) New Castle b) Kent c) Sussex

7. One fruit crop which was once grown in Delaware but is no longer very important to the farmer is a) apples b) peaches c) canteloupes d) watermelons

8. One example of a food processed in Dover is a) crabs b) fish c) chickens d) oysters

9. Most of the canning of fish and shellfish is done in a) Milford b) Dover c) Lewes d) Wilmington

10. A fish which is not fit for human consumption but which has many other uses is a) menhaden b) crabs c) trout d) sardines

11. The greatest part of the work force in Delaware are people employed as a) clerical workers b) factory and semi-skilled workers c) professional people d) domestics

12. The first people to build ships in Delaware were the a) English b) Swedish c) Dutch d) French

13. The most important activity in the manufacturing industries is a) hardware b) chemicals c) textiles d) leather products

14. One industry which is not concerned with the development of chemicals is a) DuPont b) Hercules c) Atlas d) Avon

15. An early gunpowder factory which grew into a large chemical company was started by a) E. I. DuPont b) J. M. Atlas c) O. H. Hercules

TEST (continued)

16. Approximately _____ communities are involved in the state's food processing industry a) 6 b) 179 c) 40 d) 57

17. One of the world's leading fishing ports is a) Lewes b) New Castle c) Wilmington d) Milford

18. The largest port in Delaware is in a) Lewes b) New Castle c) Wilmington d) Milford

19. One of the many reasons that corporations have their main office in Delaware is the lower a) pollution b) taxes c) rent d) wages

20. One thing which is not produced by the DuPont Company in Delaware is a) nylon b) paint c) paper d) chemicals

21. One reason menhaden are not used for food for people is that they are too a) oily b) small c) salty d) dry

22. During the early days of Delaware's history, the state led the 13 states in the export of a) gunpowder b) corn c) grain and flour d) wheat

23. The largest crops raised by modern Delaware farmers are a) soybeans and corn b) tomatoes and wheat c) corn and tomatoes

24. The peach was important to Delaware agriculture until a) 1650 b) 1776 c) 1900 d) 1972

25. Some of the reasons for Delaware's great economic growth and development are: (Underline as many answers as are appropriate) a) water power available b) favorable corporation laws c) mild climate d) central location

Unit Title: CAREERS IN DELAWARE

I. Unit Overview: For a state so small, Delaware has always had a wide range of available career opportunities. In this unit, the child will take a look at the various jobs available in the past and present and what factors have influenced the availability of these jobs. For in Delaware, the youth of today will be the job-holders of the future, and therefore, they need to be aware of what is happening in their state and how this may affect them and their futures.

II. Unit Content Outline:

A. Careers available in Delaware
   1. Agriculture
   2. Industrial
   3. Recreational
   4. Service (Professions)
   5. Military

B. Factors in job availability past and present
   1. Location
   2. Climate
   3. Transportation
   4. Soil

C. Factors in job availability in the future
   1. Pollution
   2. Food prices
   3. No draft
   4. Decreasing enrollments in schools
   5. Availability of crude oil
   6. Technology
   7. Increasing population

III. Unit Objectives: The student will be able to...

1. identify and describe various careers available in Delaware in the past and present.
2. explain what factors have determined the kind of work available to the people in Delaware in the past and present.
3. speculate about the possible future careers in the state of Delaware.

IV. Unit Description:

Unit Objective #1: The student will be able to describe various careers available in Delaware in the past and present.

A. Criterion-Referenced Objectives: The student will be able to:
   1. describe five careers available in Delaware today in each of the following areas:
      a. Agriculture
      b. Industry
      c. Military
      d. Recreation
      e. Service (Professions)

2. Read and discuss pp. 42-56 in Introduction to Delaware.
3. Have a group of students make a chart showing the proportion of people involved in various types of occupations in Delaware.
4. Have a small group of students draw an outline map of Delaware showing where the various Delaware industrial products are produced.
5. Have a small group of students draw an outline map of Delaware showing the various agricultural products.
6. Show filmstrips called Our Community Utilities.
7. Oral discussion of the following "Pretend you are on an Imaginary Trip to Rehobeth Beach," list all the various people who work at the beach. What does each person do?
8. Speaker and field trip on jobs in the Delaware Air National Guard.
9. Have a nurse or doctor come and talk to the class about various careers of service.
10. Make available a series of field trips to various businesses. Each student will then choose one or two of these trips to take. Group that goes will report back to the others what they saw. Some possibilities of places to go are the following:
    1. Wilmington marine Terminal
    2. Diamond State Telephone
    3. Delaware Trust Company
    4. WNRK
    5. Academy of Veterinarian Hospital
    6. General Motors or Chrysler
    7. Dayett Mills
    8. Book Bindery
    9. Shamrock Printing
    9. Getty Oil

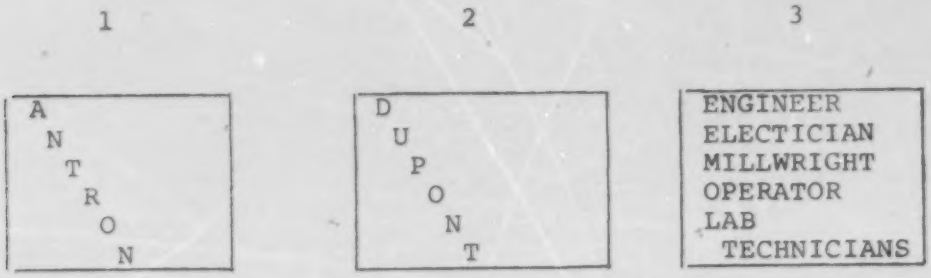
    When field trips are not feasible, guest speakers can be brought to the classroom from various businesses.
11. Have a small group of students make cards of what people do in a particular job. Then use these cards to play charades where child draws a card, does the action, and others identify what occupation he is involved in.
12. Creative Writing Station--Have available various cards with topics such as "Pretend you are a Designer." Design a new machine and explain what it does. Topics may be found in Creative Language Projects--Book C, by Mary Pat Mullaney.
13. Have a small group of students make a JOBBO game. The JOBBO board will show the titles of various occupations. To play, a leader would name, from a list, a particular activity. The students would then cover any square with the name of a worker that does that job. When a student gets three in a row, he says, "JOBBO!" Sample:

TEACHER	PILOT	MILLWRIGHT
NURSE	FREE	FARMER
LAB TECHNICIAN	OPERATOR	CHEMIST

MASTER LIST

1. Fixes machines
2. Plants crops
3. Runs machinery
4. Flies planes
5. Assists Doctors

14. Brainstorming Discussion--Leader names a company and a product. The class will then name all the people involved in making this product and tell what their duties are.
15. Have a small group of students develop and make a JUMMY game. Make 3 cards for each set. The number of sets in a deck will depend on the students. Color code each set. Card 1 of each depend on the students. Color code each set. Card 1 of each set will name a product or service. Card 2 of each set will name a Delaware company that makes that product or deals in that service. Card 3 of each set will list various occupations involved in the making of that product in that company. Each group of students that visits a business can prepare a set of cards for that business to add to the deck. Sample:



Rules of Game: Play similar to Rummy. When a child gets all three of one set, he or she lays them down as a book. The winner is the first person to use all the cards.

16. Divide the class into groups of 4-6 students. Assign each group to research in depth a particular occupation in one of the following areas: Agriculture, Military, Recreation, Industry, and Service (Professions). Then each group in Art Elective class, will build a panarama illustrating this occupation and write a description of their project. These projects will then be set around the room for others to see.
17. Read Packet Alley to the class. Discuss the various occupations in Delaware's past history that are mentioned in the book.
18. Read to class descriptions from Artifact Program of the Historical Society of Delaware-Teacher's Guide, and point out various past occupations concerned with making razors, spectacles, sugar tongues, pepper pot, snuff pot, and pouree' pots.
19. Show slides Early Brandywine Industries and the Hagley Museum, if available.
20. Show filmstrip "The Work People Do." Assign accompanying dittos pp. 12-21, 25 (optional).

Unit Objective #2: The student will be able to explain what factors have determined the kind of work available to the people in Delaware in the past and present.

A. Criterion-Referenced Objectives:

1. Given two major occupations, the student will be able to state one reason why each of these jobs is a major source of employment in Delaware today.
2. Given three major occupations in Delaware's past history, the student will be able to write, using complete sentences, at least one factor which contributed to each job's decline as a major source of employment in Delaware.

B. Learning Activities:

1. Have a small group of students make a salt map showing the distribution of the various types of soil in Delaware. Discussion of how this distribution has affected the location of particular jobs.
2. Have a group of students make a large map showing the location and routes of the various types of transportation available in Delaware. Discuss the effects of transportation on locations and types of jobs found in Delaware.
3. Read and discuss pp. 45-47 in Introduction to Delaware.
4. Show filmstrips Delaware's History Part I and Part II.
5. Read Packet Alley to class and discuss what happened to particular occupations mentioned in the book and discuss why this happened.
6. Show the following movies from Delaware Up To Now Series.
   a. "Delaware Industry and Transportation, 1750-1860, With a Clack, a Chug, and a Splash."
   b. "Delaware Agriculture, 1750-1860, Harvest of a Diamond State."
   c. "Delaware From Pearl Harbor to Outer Space."
7. Have some students research a particular industry and report to the class why this industry developed in Delaware, what happened to it, and how this affected the job market. Some sample topics would be the following:
   a. Peach Industry
   b. Flour Industry
   c. Shipbuilding Industry

Unit Objective #3: The student will be able to speculate about the possible future careers in the State of Delaware.

A. Criterion-Referenced Objectives:

1. The student will be able to list three factors which they feel will affect the types of job found in Delaware in the future.
2. Given a current environmental or cultural factor, the student will be able to explain or write how they see this as affecting the future job market in Delaware.

B. Learning Activities:

1. Braninstorming discussions such as:
   a. "What problems of today do you think will affect the availability of jobs in ten years?" Example: Pollution.
   b. "How do you think _____ will affect the kinds of jobs available in Delaware. (Pollution)
2. Draw a picture of a job of the future and have each student describe what that person will do.

C. Materials:

Teachers Books

1. Dunn, Charleta and Payne, Bill F. World of Work, Leslie Press, 1971.
2. Kraft, John C. and Salsbury, Robert L., Transactions of the Delaware Academy of Science.
3. Mullaney, Mary Pat, Creative Language Projects - Book C, Milliken Publishing Company, 1973.
4. Scarangello, Aletha and Anthony, Introduction to Delaware, K.E. McRoberts, Inc., 1973.

Children's Books

1. Baker, Eugene, I Want to Be an Architech, Children's Press, 1969.
2. Baily, Bernadine, Delaware, Albert Whitman and Company, 1960.
3. Carpenter, Allan, Enchantment of America Delaware, Children's Press, 1967.
4. Davis, Mary, Careers in a Medical Center, Learner Publications Company, 1973.
5. Delaware Today Magazine, Delaware Today, Inc., 1973.
6. Delaware State Chamber of Commerce, Inc., Delaware U.S.A., Windsor Publications, 1969.
7. Englebardt, Stanley, L., Jobs in Health Care, Lothrop, Lee and Shepard Company, 1973.
8. Evening Journal, pp. 11-14. July 2, 1974, Wilmington, Delaware.
9. Goldreich, Gloria and Esther, What Can She Be? A Lawyer, Lothrop, Lee & Shepard Company, 1973.
10. Greater Newark Chamber of Commerce, Greater Newark Delaware.
11. Lauber, Patricia, The Look-It-Up Book of the 50 States, Random House, 1967.
12. Meg, Elizabeth, Packet Alley, G.P. Putnams Sons, 1951.
13. Merit Students Encyclopedia, Crowell-Collier Educational Corporation, 1967, Vol. 5.
14. New Book of Knowledge, Grolier, Inc., 1969, Vol. 4.
15. Urdang, Lawrence (editor), Official Associated Almanac, Almanac Publishers Corporation, Inc., 1971.

Transparencies

1. Scarangello, Aletha and Anthony, Discover Delaware Transparencies, K.E. McRoberts, Inc., 1973, T228-T239.

Filmstrips

1. Our Community Utilities, FSC-10
2. History of Delaware
3. Early Brandywine Industries and the Hagley Museum 35 mm slide kit available from Audio-Visual Department, State Board of Education, Dover, DE.
4. "The Work People Do" Career Awareness Kits QED.

Movies

1. The Delaware Up to Now Series
   a. "Delaware Industry and Transportation, 1750-1860 With a Clack, a Chug, and a Splash."
   b. "Delaware Agriculture, 1750-1860 Harvest of a Diamond State."
   c. "Delaware - From Pearl Harbor to Outer Space."

Library Kits

Delaware - Set A
   a. Artifact Program of the Historical Society of Delaware--Teacher's Guide. State Department of Public Instruction, 1969.
   b. Pictorial Guides to Delaware.

Delaware - Set B
   a. Archaeology
   b. Historical
   c. Newark
   d. Present-Day
   e. Tour
   f. Wilmington
   g. Career Awareness Kit QED - Use dittos #12-21,25.

Unit Title: CLOTHING INDUSTRY

I. Unit Overview: In this unit the student studies the production of textiles and the manufacturing of garments. They discover the source and follow the development of natural and man-made fibers. They also trace the manufacturing of garments from out of the home into a factory which has led to a large source of occupations today. Finally, the student has a chance to speculate on fabrics of the future and the manufacturing of garments in the future.

II. Unit Content Outline:

A. Natural Fibers
   1. Linen
   2. Wool
   3. Cotton
   4. Silk

B. Man-Made Fibers (Synthetics)
   1. Dacron
   2. Nylon
   3. Rayon
   4. Others
   5. Future Fabrics

C. Production of Clothing
   1. History
   2. Stages in Production
   3. Future Techniques

III. Unit Objectives: The student will be able to:

1. distinguish between natural and man-made materials;
2. describe the processes involved in making clothes;
3. explain the interdependency of the various workers involved in the making of clothes;
4. speculate about the kinds of clothes in the future and how they will be made.

IV. Unit Description:

Unit Objective #1: The student will be able to distinguish between natural and man-made materials.

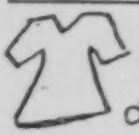
A. Criterion-Referenced Objectives: The student will be able to:
   1. Locate on a map the major sources of cotton, wool, flax, silk, and synthetics;
   2. Differentiate between natural and man-made materials by coloring natural materials green and man-made materials brown.

B. Learning Activities:
1. Read and discuss pp. 61-98 in Industry: Man and the Machine.
2. Burn samples of various natural man-made materials to see what happens to each.
3. Individual and group reports on Linen, Wool, Cotton, Silk, and various synthetics.
In these reports they will tell the following:
a. Sources of fiber
b. Development of fiber
c. Is it natural or synthetic?
d. Is it flammable?
4. Discussion on how man's exploration of space has affected man-made materials.

Unit Objective #2: The student will be able to describe the processes involved in making clothes.

A. Criterion-Referenced Objectives:
1. Given an assignment for the development of a class pictorial time-line depicting the various procedures in making clothes from early man to mass production techniques, the student will be able to successfully complete his task.
2. Given a sample material, the student will be able to identify if it was made by spinning, weaving, or knitting with 80% accuracy.
3. Each student will be able to illustrate the 12 stages in the production of clothes today from design to shopping (see next unit objective).

B. Learning Activities:
1. Research and development of time-line showing through pictures the development of how clothes were made from early man to mass production. Groups will research how clothes were made during the time of early man, the middle ages, the Indians, the Colonial days, and modern days.
2. Read and discuss pp. 99-113 in Industry: Man and the Machine.
3. Students will do some weaving and knitting of their own.
4. Have a group of students make a chart showing the relationship of types of clothing to how they are made.
Sample:
Column 1--Magazine pictures of particular types of clothing.
Column 2--Sample of fabric used to make that article of clothing.
Column 3--Whether cloth was spun, woven, or knitted.

Clothing	Fabric	How Made
 dress	Cotton	spun

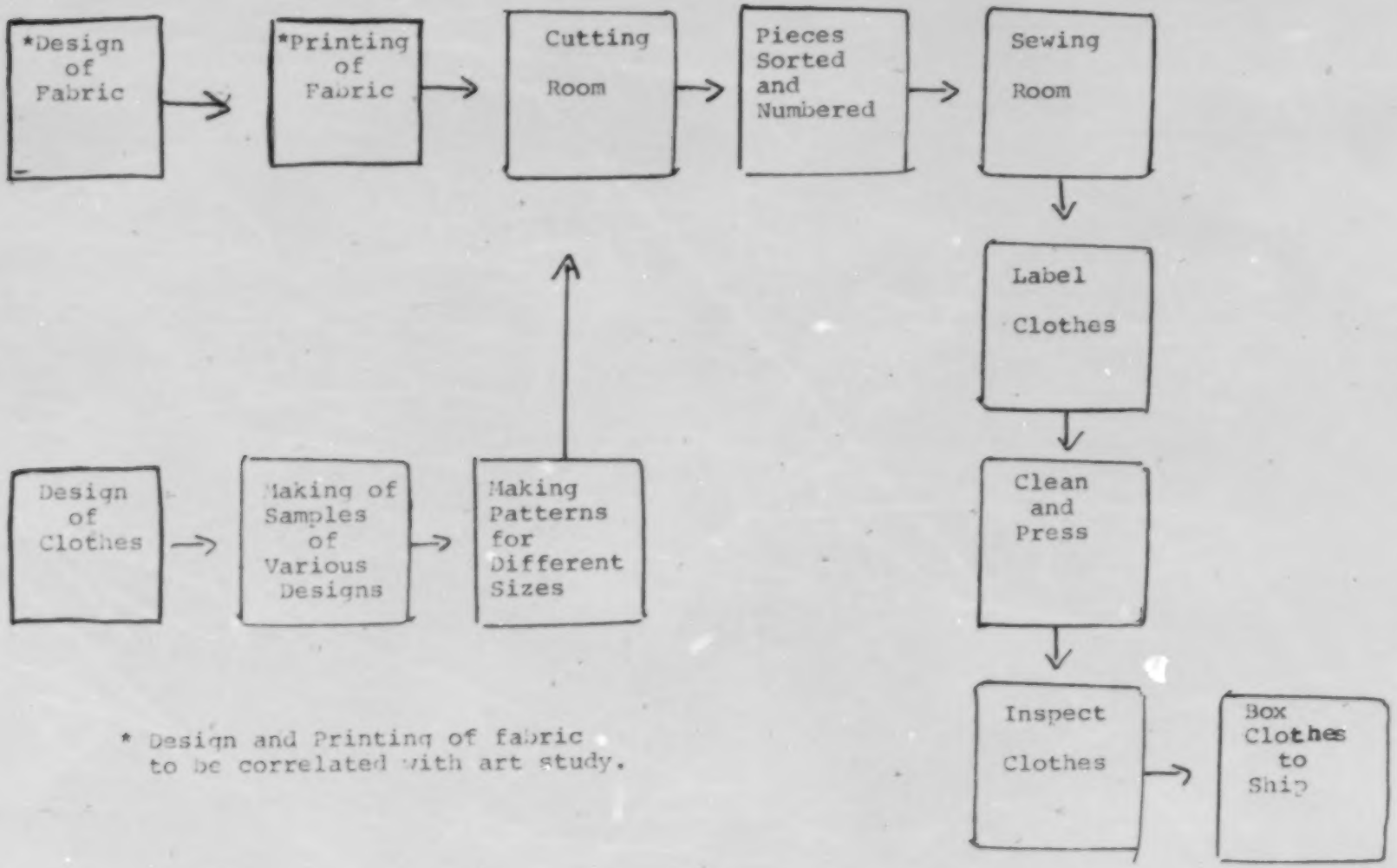
Unit Objective #3: The student will be able to explain the interdependency of the various workers involved in the making of clothes.

A. Criterion-Referenced Objective: The student will be able to:

1. State at least two ways in which his job, in the process of manufacturing clothes, affected other workers;
2. State at least two ways in which other workers' jobs affected his job in the production of clothes.

B. Learning Activities:
Set up a model factory to make doll clothes.
1. Preparation
   a. Make dolls of different sizes and assign a size for clothing to each one.
   b. Discuss idea of one worker has one job.
   c. Discuss what types of jobs are necessary to make clothes and who in the class is suited for each job.
2. Set-Up Production Line--See attached sheet.

STAGES IN THE PRODUCTION OF CLOTHING



* Design and Printing of fabric to be correlated with art study.

Unit Objective #3: The student will be able to speculate about the kinds of clothes in the future and how they will be made.

A. Criterion-Referenced Objective:
   1. The student will be able to write a paragraph using complete sentences describing the clothes of the future and how they will be made.

B. Learning Activities:
   1. Show filmstrip Man in Space.
   2. Read and discuss pp. 113-115 in Industry: Man and the Machine.
   3. Brainstorming discussion
      a. "What do you think the clothes of the future will look like?"
      b. "How will they be made?"

C. Materials:

Teachers Books:
1. Banks, Constance Karolak. Focus on Communities Old and New, Milliken Pub. Co., 1973.
2. Dunn, Charleta and Payne, Bill F. World of Work, Leslie Press, 1971.
3. Education Research Council of America, Industry: Man and the Machine--Teacher's Guide, Allyn and Bacon, Inc., 1971.
4. Free and Inexpensive Learning Materials, Division of Surveys and Field Services, George Peabody College for teachers; 1972.
5. Mullaney, Mary Pat. Creative Language Projects--Book C, Milliken Publishing Co., 1973.

Children's Books:
1. Cavanna, Betty and Harrison, George Russel. The First Book of Wool, Franklin Watts, Inc., 1966.
2. Childcraft, Field Enterprises Educational Corporation, 1968.
3. Compton's Young Children's Pre-encyclopedia, William Benton, 1971.
4. Education Research Council of America. Industry: Man and the Machine, Allyn and Bacon, Inc., 1971.
5. Merit Students Encyclopedia, Crowell-Collier Educational Corporation, 1967.
6. New Book of Knowledge, Grolier, Inc., 1969.
7. Russell, Solveig Paulson. Twist and Twine, Parents' Magazine Press, 1969.
8. Siegel, Margot. Looking Forward to a Career in Fashions, Dillon Press, 1970.
9. The World Book Encyclopedia, Field Enterprises Educational Corp., 1972.
10. Visual Industry Series. Wool in Pictures, Sterling Publishing Co., Inc., 1966.

Unit Title: ENVIRONMENTAL CONTROL

I. Unit Overview: The unit, Environmental Control, purposes to relate various careers and work people do in relation to the environment of all living and nonliving things. To provide an awareness that an "A" person is concerned with the control of those forces and conditions which will ensure the protection and wise use of all natural resources.

II. Unit Content Outline:

A. Relate concern for natural resources of the environment
   1. Soil (conservation)
   2. Forest (conservation)
   3. Wildlife (conservation)
   4. Water (conservation)
   5. Mineral (conservation)
   6. Human (conservation)

B. Relate an awareness of careers and work people do to protect the environment.
   1. Federal Government Organizations (protection)
   2. Local and state agencies (pollution control)
   3. Other organizations (conservation)

III. Unit Objectives:

1. The Environment--The student will be able to relate the concern for wise use of natural resources to the environment.
   a. Soil - The student will be able to demonstrate soil conservation as a means of controlling the environment.
   b. Forest - The student will be able to illustrate forest conservation as a means of controlling the environment.
   c. Wildlife - The student will be able to determine wildlife conservation as a means of controlling the environment.
   d. Water - The student will be able to distinguish water conservation as a means of controlling the environment.
   e. Mineral - The student will be able to demonstrate mineral conservation as a means of controlling the environment.
   f. Human - The student will determine human conservation as a means of controlling the environment.
2. Protecting the environment - The student will be able to relate awareness of careers and work people do to help protect the environment.
   a. Federal Government Agencies - The student will be able to investigate Federal Government Agencies which establish controls of protection of the environment.
   b. State and Local Agencies - The student will be able to investigate pollution control agencies at the state and local level.
   c. Other Organizations - The student will be able to investigate conservation organizations concerned with environmental control.

IV. Unit Description:

Unit Objective #1: The Environment - The student will be able to relate concern for wise use of natural resources and the environment.

A. Criterion-Referenced Objective:
1. The student will be able to show evidence of wise use of soil, forest, water, wildlife, mineral and human resources for a better environment.

B. Learning Activities:
1. Student takes part in constructing a two-part diorama. Unwise v. wise use of natural resources. Example: with cut-out pictures or drawings.

Field erosion	- Soil	- Field growing crops
Forest land cut-clean	- Forest	- Forest of useful timber
Flood	- Water	- Fish, swimming, drinking
An extinct animal (eagle)	- Wildlife	- Animal family in natural surroundings
Coal strip mining	- Minerals	- Product--Chemicals, fuel
Neglected older or young person	- Human	- People productive at work or play

C. Materials:
1. Old magazines
2. Scissors
3. Crayons
4. Construction paper
5. Paste
6. Large sheet of wrapping paper for diorama

Unit Objective #1a: Soil - The student will be able to demonstrate soil conservation as a means of controlling the environment.

A. Criterion-Referenced Objective:
1. The student will be able to show evidence of wise use of soil for more productive environment.

B. Learning Activities:
1. Student will survey and measure his own backyard area to determine use and purpose of soil (language, math and science). Example: grow grass-prevent erosion, grow trees-shade, etc.
2. Student helps make community map showing best soil conditions for construction of roads, buildings, farm land, recreation, etc. (social studies).
3. Student studies types of soil (science).
4. Student makes soil samples to note effects of weather and other uncontrolled conditions (science).
5. Student makes picture - dictionary to relate terms and soil control (language). Example: Erosion-definition and small drawing.

C. Materials:
1. Survey paper for backyard investigation.
2. Paper for map and dictionary construction
3. Soil samples.
4. Reference books.
5. Seeds for growing in top soil.
6. Filmstrips: What is Soil, 631.4
Soil Conservation Today and record 383.7/F.

Unit Objective #1b: Forest - The student will be able to illustrate forest conservation as a means of controlling the environment.

A. Criterion-Referenced Objective:
1. The student will be able to give evidence of wise use of forest for a more productive environment.

B. Learning Activities:
1. Student will take part in construction of a flow chart showing products he uses that come from different parts of a tree. (science)
Example: Trunk-Lumber, Fruit-Food, etc.
2. Student reads Smokey the Bear Comic Book for conservation information about forest. (language)
3. Student constructs a poster of Smokey the Bear and lists forest enemies. (awareness)
4. Student write story about forest helpers.

C. Materials:
1. Large paper for flow-chart.
2. Art materials.
3. Reference books - Smokey the Bear, etc.
4. Chart diagram of Trees parts, and products.
5. Filmstrips: Forest Conservation, 333.7 and record 333.7/F

Unit Objective #1c: Wildlife - The student will be able to determine wildlife conservation as a means of controlling the environment.

A. Criterion-Referenced Objective:
1. The student will be able to show evidence of wise use of wildlife for a balanced environment.

B. Learning Activities:
1. Student constructs a booklet naming and drawing kinds of wildlife he has seen and where (language).
Example: Rabbit-woods, lion-circus, etc.
2. Student helps make a poster of purposes of wildlife (art). Example: Food, recreation, etc.
3. Student helps construct a chart life cycle (science). Shows place of wildlife.
4. Student makes a show box model of environment for a wildlife animal of his choice. (social studies)
5. Student writes report on ways wildlife can be controlled. (awareness and language) Example: hunting season, size limit, construct planning.

C. Materials:
1. Construction paper and composition paper for booklet.
2. Reference books on Wildlife
3. Shoe boxes
4. Grass, sticks and other materials for natural environment.
5. Filmstrip: Wildlife Conservation Today, 333.7 and record 333.7/w.
6. Art materials

Unit Objective #1d: Water - The student will be able to distinguish water conservation as a means of controlling the environment.

A. Criterion-Referenced Objective:
1. The student will be able to show evidence of wise use of water for a more livable environment.

B. Learning Activities:
1. Student will construct bulletin board display of pictures of things that need water (awareness). Example: animals, people, power plants, industry, etc.
2. Student takes part in construction diorama showing water conservation at its best.
   a. Reservoir - recreation and water storage
   b. Trees and plants - life
   c. Dam and power house - control and electricity
   d. Irrigation canals - controlled supply
   e. Water works - uses
   f. City - users
   g. Sewage plant - pollution control

C. Materials:
1. Scissors
2. Old magazines
3. Paste
4. Art materials
5. Reference books and diagram chart of water control conservation
6. Filmstrips: Work of Running Water, 551.3; Water Conservation Today, 333.7

Unit Objective #1e: Minerals - The student will be able to demonstrate mineral conservation as a means of controlling the environment.

A. Criterion-Referenced Objective:
1. The student will be able to show wise use of minerals for a more productive environment.

B. Learning Activities:
1. Student will construct catalogue of conveniences of modern life (art). Example: steel-cars, copper-telephone wire, coal and petroleum-heat and power, etc.

B. Learning Activities:
   2. Student constructs a model of underground mine as example of one way minerals are obtained. (science)
   3. Student lists careers and types of work people do to provide minerals for industry. (language) Example: geologists to truck drivers
   4. Field trip to Atomic Energy Plant - Investigate pros and cons for automic energy in relation to the environment. (awareness)

C. Materials:
   1. Art materials
   2. Reference books on minerals and methods of obtaining minerals
   3. Popeye Comic Book - King Features, 235 East 45th Street, New York, NY 10017
   4. Field trip - Atomic Energy Plant - Peach Bottom, PA
   5. Filmstrips:
      a. Coal mining - 622,33
      b. Iron and Steel - 669.1
      c. Rocks and Minerals - 552 and record no. 552/R

Unit Objective #1f: Human - The student will determine human conservation as a means of controlling the environment.

A. Criterion-Referenced Objective:
   1. The student will be able to show evidence of wise use of people as most important part of the environment.

B. Learning Activities:
   1. Student constructs poster showing ways he is responsible for his health, happiness and well-being. (awareness) Example: health-personal hygiene, happiness-enjoying a game, well-being know bike safety, etc.
   2. Student surveys community for evidence of lack of human concern. (science) (Poor housing, unemployment, etc.)
   3. Student makes personal inventory for determining resources he can apply to world of work. (social studies) Example: likes, dislikes, special abilities, etc.
   4. Student writes a report on a career or type of work he feels best suited to him for a better environment. (awareness) Example: crime control-detective, providing services or goods-truck driver, etc.
   5. Field trips to see people at work.
   6. Resource personnel - Representative from industry or business to explain about condition for best human productivity. (awareness) Example: health insurance, paid vacations, etc.

C. Materials:
1. Art materials
2. Community Survey Sheet
3. Personal inventory sheet
4. Popeye Career Comic Books, King Features, 235 East 45th Street, New York, NY 10017
5. Field trips to local industry or business
6. Resource personnel form local industry or business
7. Filmstrips:
   a. Walter Reed and Conquest of Yellow Fever - B
   b. Work of Louis Pasteur - B
   c. Edward Livingston Trudeau and the Crusade Against Tuberculosis - B
   d. What is a Job, 371.42
   e. Social Service and the Social Worker, 361
   f. Individual Filmstrips review for career of choice. Example: The Banker, 332.1

Unit Objective #2a: Federal Government Agencies - The student will be able to investigate Federal Government Agencies which establish controls for protection of the environment.

A. Criterion-Referenced Objective:
1. The student will be able to identify various Federal Agencies whose function is the management of natural resources for the protection of the environment.

B. Learning Activities:
1. Student becomes aware of purpose for Federal Government Agencies by subscribing to magazines put out by various agencies. (awareness) Example: Ranger Rick's Nature Magazine--National Wildlife Federation, Popeye Career Comic Books, Federal Environmental Protection Agency.
2. Student works on project of concern about a particular topic. (science and social studies) Example: Soil--Agency - Soil Conservation Service; Water and Soil: Agency - Tennessee Authority, etc.
3. Student plans a work experience in a particular National Park. Writes letter to National Park Service, Bureau of United States Department of Interior for information on careers and work people do.

C. Materials:
1. Samples of magazines available upon request:
   a. Ranger Rick's Nature Magazine
   b. Smokey the Bear Conservation Magazine
   c. Popeye Career Comic Book
2. List of Government Agencies to write to:
   a. Agriculture Department Bureau of Dept. of Interior
   b. Central Valley Project
   c. Missouri River Basin Project
   d. National Forest
   e. National Park System
   f. Soil Conservation Service
   g. Department of Health, Education and Welfare

3. Filmstrips:
   a. Series on Conservation Today, 333.7
4. Reference books

Unit Objective #2b: State and Local Agencies - The student will be able to investigate pollution control agencies at the state and local level.

A. Criterion-Referenced Objective:
   1. The student will be able to identify various state and local agencies whose function is the management of a pollution influenced environment.

B. Learning Activities:
   1. Student makes a symbol graph of Delaware's Employment (interdependence)
   2. Student works on committee doing research on a particular topic. (social studies and science) Example: Water--recreation, transportation, power, etc.
   3. Student writes to agency for information on pollution conditions. (controls) Example: water--Delaware River Basin Commission
   4. Student surveys parent and/or parents as to work and people whose job it is to carry out pollution controls at their place of work or business.

C. Materials:
   1. Materials for making graph (art).
   2. Employment information - U. S. Department of Labor
   3. List of agencies to write for information
   4. Parent survey sheet

Unit Objective #2c: Other Organizations - The student will be able to investigate conservation organizations concerned with environmental control.

A. Criterion-Referenced Objective:
   1. The student will be able to identify various organizations whose function is encouragement of environment control through conservation.

B. Learning Activities:
   1. Student surveys class to determine number of students in a club or organization that is concerned with the environment. (awareness)
   2. Student studies requirements as to type of individual for membership in organizations. (social studies) Example: Boy Scout - Be prepared; and Creed - Scout is trustworthy, loyal and brave, etc.
   3. Student checks organization handbook to learn about projects for an improved environment. (social studies, science)

4. Student takes part in an environment control activity. Example: Park clean-up and list restrictions.
5. Resource person from organization. Example: Camp Fire Girls Leader

C. Materials:
1. List of different organization for survey
   a. Boy Scouts
   b. Girl Scouts
   c. Camp Fire Girls
   d. Four-H-Club
   e. Future Farmers of America
2. Samples of handbooks from organizations just listed
3. Resource people - organization leader
4. Outline plans for class project

Unit Title: HOSPITALITY AND RECREATIONAL SERVICES

I. Unit Overview: One purpose of the unit, Hospitality and Recreational Services, is to examine the interdependence of people working together in varying capacities. A discussion should develop within three phases of the unit:
   1. "Motels, Hotels, Restaurants". Talk about managers, doormen, clerks, elevator operators, maids, waitresses, busboys, dishwashers, indoor and outdoor maintenance crews, etc.
   2. Talk about the Zoo and its components with regard to maintenance, birds, mamals, reptiles, Art and Beauty in a Zoo, curators, headkeepers, veterinarian, superintendents, and photographers.
   3. When talking about the "Beaches and Parks", develop a discussion to include National Park Service, Department of Agriculture and Forest Rangers, Leasing of land, Preservation of Wildlife, Park Rangers, Camp Counselors as supervisors of Athletic Events as well as lifeguards. Through a discussion of various phases, each provides a significant source through which it can be seen how many jobs differ in requirements as well as responsibilities.

II. Unit Content Outline: None

III. Unit Objectives:

Viewing various occupations within the framework of Restaurants, Motels, Hotels, The Zoo, Beaches and Parks, students will be able to:
1. Distinguish the duties of ranger.
2. Label components of park.
3. Write a story using homonyms.
4. Construct a diorama of a resort.

IV. Unit Description:

Unit Objective #1: The students will be able to distinguish the duties of rangers.

A. Criterion-Referenced Objective:
   1. Given a list of ten duties of forest and park rangers, the sutdents will be able to distinguish them by placing an "f" or a "p" in the blank before the listed responsibility.

B. Learning Activities:
   1. Discussion: "What is a park?"
      a. Need of park services
      b. What created the need?
      c. What kind of people are employed by park services?
      d. What kind of duties are performed?
      e. How do these services benefit me?
   2. Show a filmstrip about the forest.
   3. Show a filmstrip about people working in parks.

C. Materials:
1. Filmstrip: "Forest Conservation" 333.7
"Recreation, Park, and Playground Workers" 790.68

Unit Objective #2: The students will be able to label components of a park.

A. Criterion-Referenced Objective:
1. Given a skeletal drawing that represents an aerial view of a park, the students will be able to appropriate symbols and label the components of the map.

B. Learning Activities:
1. Construct a model of a park and include:
a. flower, trees, lakes, stream, fishing, boating
b. recreational facilities: tennis, golf course, concert pavillion
c. tree nursery - lookout station
d. snack or lodge area
2. Make a map of the park
3. Show film of a zoo
4. Divide the class into groups - Have each group construct a house of a specific category of animal - in a zoo (reptile house, birds, grottos, prairie, etc.)
5. Make a map of the Zoo students construct

C. Materials:
1. Obtain brochures available at places such as Longwood Gardens, Philadelphia Zoological Society, etc.

Unit Objective #3: The students will be able to write a story using homonyms.

A. Criterion-Referenced Objective:
1. Provided on experience chart that consists of ten pictures of homonym pairs; steak-stake; wood-would; pear-pare; bear-bare; hi-high; the students will be able to write a picture story to include each word or every pair.

B. Learning Activities:
1. Have students prepare a list of homonyms
2. Allow students to use magazines, newspapers, advertisements to find homonym pairs and arrange them in such a way to make sentences.

Unit Objective #4: The students will be able to construct a diorama of a resort.

A. Criterion-Referenced Objective:
1. Provided with an outline of specific features of a resort, the students will construct a diorama and prepare a legend as a guide to include beaches and parks, eating and lodging facilities, and a zoological garden.

B. Learning Activities:
   1. Show filmstrips "Yellowstone National Park" Discuss Services provided, its location, why it is a national park.
   2. Have students make individual shadow boxes (shoe box or other) of a park or place of wonder.
   3. Prepare a brochure telling about the features their shadow box represents, inviting people to go there.
   4. Make floor plan of the classroom and/or school. Indicate facilities by symbols.

C. Materials:
   1. Filmstrip
      a. Yellowstone National Park - 719
      b. Our National Park Service - 719 O

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Barleen, Ann, Noah's Ark, Dance-a-Record, A Record, RCA.

Berrill, Jacquelyn, Wonders of Animal Nurseries, New York, 1968.

Buff, Mary and Conrad, Forest Folk, New York, 1962.

Eberle, Irmengarde, Fawn in the Woods, New York, 1962.

Feilen, John, Squirrels, New York, 1967.

Gelb, Donald L, What Will I Be From A to Z, Chicago, 1969.

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Goudey, Alice, Here Come the Lions! New York, 1956.

Goudey, Alice, Here Come the Elephants! New York, 1955.

Goudey, Alice, Here Come the Racoons! New York, 1957.

Greene, Carla, I Want to be a Zookeeper, Chicago, 1957.

Greene, Carla, I Want to be a Restaurant Owner, Chicago, 1959.

Lauber, Patricia, The Surprising Kangaroos and Other Pouched Mammals, New York, 1965.

Unit Title: LOCAL AND GLOBAL COMMUNICATION AND TRANSPORTATION

I. Unit Overview: Pupils in fourth and fifth grades, having previously been introduced to and having identified careers in the subject field, are ready to refine this knowldege and bring it into focus as to how it effects him, who as an "A" person will personally use it in making a preliminary choice of a future career.

II. Unit Content Outline:

A. Select and list careers in subject fields
   1. Select jobs
   2. List jobs
B. Define and report
   1. Importance of careers
   2. Qualifications for jobs in specified careers
C. Relate and refine ideas on careers by:
   1. Through "eyes" of an "A" person
      a. fill out and mail an application,
      b. make and keep an appointement for an interview with a prospective employer.

III. Unit Objectives:

1. Select and list: Pupil will select and list six careers from a series of pictures in the subject field.
2. Research, Refine, and Report: Pupil will do "mini" research projects and be able to define the six chosen careers in short report which identify and relate these careers to the subject fields.
3. Relate and Apply: Pupil will select one career from the group of pictures and relate himself to that career as an "A" person, who through a study of that career in detail will gather information on:
   a. Qualifications for job
      1) Emotional
      2) Physical
      3) Educational
      4) Social
   b. Requirements for job
      1) Physical
      2) Mental
   c. Application procedure
      1) Filling in application form
      2) Making and keeping an appointment for an interview for a job with a prospective employer

IV. Unit Objective #1: Pupil will select and list research, define and report, and then relate and apply career to himself, as an "A" person; by making application for a job and report for an interview with a prospective employer.

A. Criterion-Referenced Objectives:
   1. The pupil will be able to select six pictures of jobs related to communication and transportation, on the local and global scale.
   2. Pupil will tell how the jobs are related to the subject field.
   3. Pupil will bring in clippings and pictures related to these jobs. (Clippings could be "Want-Ads" for employees in specific field.) See attached sheet. Pictures could show workers performing these tasks.

B. Learning Activities:
   1. Select six pictures.
   2. Tell how pictures of jobs are related to subject field careers.
   3. Bring in clippings and pictures of chosen jobs.
   4. Details are as follows:
      Pupil will choose six pictures from a series on careers that relate to the subject field. He will tell how these jobs time in with a career in communication or transportation. He will bring in pictures of some of these occupations. He will then explain why or why not he thinks he will try one or more of these occupations someday. He will further refine the jobs as to local or global, in character and be able to locate on a map or globe the approximate location of his chosen careers. By the use of reference books and other information he may locate in the library or from other sources, the pupil will do "mini-research" about his six careers (two of which should be global in scope), and be able to identify and define how the jobs relate to the career cluster.

      Pupil will use two or more of the following learning procedures:
      a. Reference books
      b. Books on specific careers
      c. Film strips
      d. Movies
      e. Observation of job being performed
      f. Interview with person who works at that job

      Pupil will perform the following objectives:
      a. Do a research project on the jobs in which he is most interested and learn in detail the qualifications and requirements he needs to make application for that job.
      b. Study application forms and procedure and how to fill in an application blank.
      c. He will then fill in an application and send it to a prospective employer. (This can be accomplished by dramatizing, using the teachers as the employer).

d. He will make and keep an appointment with the prospective employer for a job interview. Teacher will select appropriate field trips for own group.

C. Materials:
Books:
Children of Foreign Lands, Mimeograph Series, Continental Press. Elizabethtown, PA.

Dennison Bulletin Board Aids, Community Helpers and Transportation.

Dennison Manufacturing Company, Framingham, Massachusettes.

Dictionaries, Encyclopedias

Library Collections of Picture Story Study Prints.

Newspapers and magazines

Peabody Language Development Kits, Level 2. American Guidance Service, Ind., Circle Prime, Minnesota.

Posters giving qualifications and requirements for jobs (included in unit)

Application blank: Aenco, Inc. (included)

Help Wanted section reproduction published by U.S. Army (included)

Unit Objective #2: Pupil will select and list, research, define and report, and then relate and apply career to self by making application for a job and reporting for an interview with a prospective employer.

A. Criterion-Referenced Objectives:
1. Pupil will be able to do "mini" research and make short reports on the six careers he chose; they will identify and define how the jobs relate to the subject career clusters.
2. Pupil will choose one or more learning procedures to accomplish this goal:
   a. Reference books
   b. Film strips
   c. Educational movies
   d. Interview (with worker from a job or different jobs)
   e. Observation of job being performed

B. Learning Activities: Pupil will be the use of reference books, visual aids, observations and interviews to accomplish the above. See page I-I unit objectives.

C. Materials: Same as listed under first unit objective.

Unit Objective #3: Pupil will select and list, reserach, define and report, and relate and apply career to self by making an application for a job and reporting for an interview with a prospective employer.

A. Criterion Referenced Objectives:
   1. Pupil will in the form of an "A" person select one career from the original six that he did research on, and make a detailed study as to job requirements and qualifications.
   2. He will study application forms and procedures.
   3. He will make formal application for a job by filling in a form and "making" it to prospective employer.
   4. He will make and keep an appointment for an interview with the same prospective employer. Acceptability will be judged by the teacher, who as the prospective employer, will either hireor refuse to hire the applicant.

B. Learning Activities:
   1. Do research of career chosen and learn job requirements and qualifications.
   2. Dramatize applying for a job by filling in application and sending it it.
   3. Make an appointment for an interview with a prospective employer.
   4. Keep the appointment with the prospective employer.
   5. See Unit objective I-I.

C. Materials: Same as listed under first unit objective. Application form, state properties for dramatization, army publication (careers).

Some additional suggested activities:

Make a large poster out of pictures of workers from various careers. Use caption: "Can you guess the names of these careers?"

Use outline maps to locate careers. Delaware, United States, Globe (Global Map)

List and Locate. Careers located because of geographical boundaries. Locate countries listed in unit "Suggested Activities"

Field Trips. Trucking concern, TV station, radio station, post office, airport, and newspaper.

Have resource people visit class.

LOCAL AND GLOBAL COMMUNICATION AND TRANSPORTATION

Countries to be located and to locate a job typical of that country.* Norway, Sweden, Denmark, England, Ireland, Scotland, Holland, France, Switzerland, Spain, Italy, Greece, Czechoslovakia, Arabia, Russia, Eskimo, Canada, American Indian, United States, Mexico, Brazil, Peru, Argentina, Congo, India, Philippines, Japan, China, Australia

*Teacher may use foreign countries of own choice. Global flash cards.

Materials available in Brookside Library, * Starred items directly pertain to "Career Education"
NOTE: materials listed include catalog number from Brookside Elementary School, Newark, DE 19711

BOOKS:

Communications, Batcherlor, Julie F., (Cave writing to Television)

Communication, JUPO, Frank, J., (News through the ages)

Communication, McSpadden, J.W., (How they carried the mail to post runners to airmail)

Communications, Simposon, Willma W., About News and How It Travels.

Communications, History, Scrolls to Satellites.

Thomas Alva Edison, Kaufman, Meryn D.

Hays, Vicma P., Samuel Morse and the Telegraph.

Yates, Raymond F., Boys Book of Communications.

Brinton, Henry, The Telephone

Bucheimer, N., Let's Go to the Telephone Company.

Davis, Mary, Careers with a Telephone Company

Greene, Carla, I want to be a Telephone Operator

Schneider, Herman, Your Telephone and How it Works.

Sextant, Star, Come Work with us in a Telephone Company.

Yates, Raymond F., Boys Book of Communications (photographs - charts)

Telephone (Fiction)

Bonsall, Crosby, The Case of the Dumb Bells.

Arnold, Oren, Marvels of U.S. Mail

Barr, Jene, Mr. Mailman

Bucheimer, N., Let's Go To the Post Office

Greene, Carla, I want to be a Postman

Hastings, Everlyn, Postmen

McCall, Edith, Mail Riders

Newspapers, Books:

Lent, Henry, I Work on a "Newspaper."

Scotin, Laura, Let's Go to a Newspaper

Hall, Malcolm (Fiction) Headlines

Ross, Frank X., Radar

Radio, Gould, Jack, All About Radio and Television

Radio, Fiction, Mygett, Emmie E., Stand by for Danger

Telecommunication:

Burlingame, Roger, Out of Silence Into Sound; The Life of Alexander Graham Bell.

Colby, C., Communications; How Man Talks to Man Across Land, Sea, and Space.

Neurath, Marie, Around the Work in a Flash How Messages are Sent Via Telephone, Telegraph, Radio and Television

Bendic, Jeanne, Television Works Like This

Gould, Jack, All About Radio and Television

Ray, JoAnne, Careers with a Television Station

Stoddard, Edward, First Book of Television

Television Fiction

Linda Goes to a TV Studio

Kingman, Lee, The Saturday Gang

Lewellen, John Bryan, Tee Vee Humphrey

Television-Production and Direction; Cooke, David C., Behind the Scenes in Television

Pinkerton, Robert E., First Overland Mail

Schloat, G., Adventures of a Letter

Filmstrips Communications:

Communications; Colby C., How Man Talks to Man Across Land, Sea, and Space

Communication, Messages Travel and Are Recorded

New Communications, CRA (Communications Satellite Core)

Communication, The Wonder of the Telegraph

The Wonder of the Wireless

Communications, The Wonder of the Telephone

The Communications Break Through; Telegraph and Telephone

Telephone Services

Branley, Franklyn, Rockets and Satellites

Lewellen, John, Earth Satellite

Soloman, Louis, Telstar: Communications Break-Through of Satellite

Colby, C. Count Down: Story of our Missle Base

Engeman, Jack, Airlines Hostesses, Airlines Stewardess

Greene, Carla, Railroad Engineers and AirplanePilots

Air Bases and Airplanes: Books:

Greene, Carla (Airplane Hostesses) I Want to be an Airplane Hostess

Phleger, Fred, Ann Can Fly

Bagwell, This is an Aiport

Cooke, David D., Behind the Scenes at the Airport

Bartlett, Robert M., Sky Pioneer, The Story of Igor I. Sirorsky

Cooke, David C., Transport Plans that made History

Dean, Jennifer B., Careers with an Airline

Acceptable.....

APPLICATION FOR EMPLOYMENT AS ..... **Date** ....., 19....

Name in full ..... (Last, First, Middle) **Social Security No.** .....

Present Address ..... (Street and Number, City, State, Telephone)

How long have you lived at above address? ..... **With whom do you live?** .....

Mailing address ..... (Street and Number, City, State, Telephone)

Citizen of U. S. A. ..... **Who are dependent upon you for support?** ..... **Date of birth** ..... (Month, Day, Year)

Date Entered Military Service **Branch** **Date Released** **Type of Separation**

Do you belong to the Military or Naval Reserve? ..... **If so, what unit?** .....

Single, married, divorced, widowed or separated? **Full name of Spouse** ..... **Father's Full name**

In case of accident Notify: ..... **Address** .....

Do you carry insurance? ..... **Life $** ..... **Accident $** ..... **Health $** .....

Do you have any outside income or interest? ..... **Give nature** .....

Name relatives and personal acquaintances in our employ, if any .....

Have you ever been bonded? ..... **With what Company?** ..... **Has bond ever been refused?** .....

Are you employed at present? ..... **Have you ever been discharged or requested to resign?** .....

..... **Can you accept position at once?** ..... **If not, how soon** ..... **Do you have a criminal record?** .....

Mention physical defects or serious illness during past three years .....

EDUCATIONAL RECORD

	NAME OF SCHOOL	FROM MONTH	FROM YEAR	TO MONTH	TO YEAR	YEARS COMPLETED	DID YOU GRADUATE	DEGREE
Grammar school								
High school								
College								
Other								

Principal courses studied .....

Specify foreign languages you write or speak .....

CHARACTER REFERENCES

ALL APPLICANTS: Give persons who are well acquainted with you, but not relatives or former employers.

NAME	STREET NUMBER	CITY	STATE	OCCUPATION

All Applicants: Give Age ..... **Weight** ..... **Height** ..... **Color Hair** ..... **Eyes** .....

(OVER)

From Mo./Yr.	To Mo./Yr.	4. NAME OF EMPLOYER & TO WHOM YOU REPORTED	ADDRESS	EMPLOYER'S BUSINESS	MO. EARNINGS	NATURE OF YOUR DUTIES AND REASON FOR LEAVING
		1.				
		2.				
		1.				
		2.				
		1.				
		2.				
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		1.				
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ALL APPLICANTS: Remarks on particular abilities to do job.

IMPORTANT—READ CAREFULLY

GENERAL INFORMATION

Any applicants who may be subsequently hired shall serve a probationary period of 60 days. Continuation of employment will be dependent upon quality of work and usefulness to the Company.

2. Any appointments to a position with this Company shall be predicated upon the truthfulness of the statements contained herein.
3. All applicants shall be considered for employment without regard to race, religion, color, or national origin.

QUALIFICATIONS

This Company reserves the right to require a medical examination, by a doctor designated by the Company, before employment.

The Company will not tolerate being subjected to any annoyance, embarrassment or expense on account of the misconduct of an employee while on or off duty, or, on account of the Company being made garnishee in suits involving an employee or on account of wage assignments made by an employee. Any of the above offenses shall be sufficient cause for suspension or dismissal.

No agent or employee of the Company is authorized to contract for permanent employment without the written approval of an officer of the company nor to alter, modify or waive any qualifications or conditions of employment, set forth in Company Regulations without such written approval.

APPLICANT'S STATEMENT

I hereby certify that all information given by me to the foregoing questions and statements is true and correct to the best of my knowledge and any willful falsification by me on my application subjects me to immediate dismissal.

I hereby authorize this Company to investigate all or any qualifications or references stated herein including previous work history.

In consideration of my employment I agree that if at any time I shall make claim against the Company for personal injuries, I will submit to examination by physicians of the Company's choice upon their request.

If given employment I shall familiarize myself with all governmental and Company rules and regulations and shall faithfully abide by them.

If given employment I hereby agree that such employment may be terminated by the Company at any time without advance notice and without liability to me for wages or salary, except such as may have been earned prior to such termination.

If given employment I hereby agree to sign the Company's standard form of agreement relating to patents or inventions.

Date .....

(x) .....
Signature of applicant (in ink)

THIS SPACE TO BE FILLED OUT BY EMPLOYER

Interviewed by ..... Date .....
Personnel Dept.

Interviewed by ..... Date .....
Department Head

Applicant to start work on ..... as .....

Starting rate to be ..... Per .....

Other arrangements and remarks .....

Hiring approval .....
Department Head Personnel Dept.

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SECTION A 8 CS **The Sunday Bulletin**

Sunday, December 2, 1973

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SCIENCE

Unit Title: AN INTRODUCTION TO NUTRITION

I. Unit Overview: Students at the fourth grade level are very aware of the constant changes in their bodies. They are mature young adults enough to recognize the connection between the foods they eat and connection between food and physiological development.

The intent of this unit is to introduce formal nutrition education and the role of the government in consumer education and protection. The unit content requires the application of skills from math, science, language arts and social studies curriculum.

It will be presented to approximately 30 fourth grade students during twenty-five minute periods.

II. Unit Content Outline:

A. The basis for nutrition
   1. Four food groups
   2. Role of various nutrients

B. Applying good health standards
   1. Menu planning
   2. Establishing personal health goals

C. Government role
   1. Standards in advertising and labeling
   2. Standards of sanitation in food processing and preparation
   3. Scientific contributions

III. Unit Objectives:
1. The students will be able to construct a nutritionally balanced menu.
2. The students will be able to identify the role of nutrients in the development of a healthy body.
3. The students will be able to identify the roles of scientists in the development and improvement of processed foods.
4. The students will be able to list government agencies which control the preparation and processing of food.
5. The students will be able to identify appropriate standards of sanitation in food processing and preparation.
6. The students will be able to compare and contrast honest and misleading methods of advertising and labeling.
7. The students will be able to list personal goals for improving his or her health.

IV. Unit Description

Unit objective #1: The student will be able to construct a nutritionally balanced menu.

A. Criterion-Referenced Objective:

1. The student will be able to list the four food groups.
2. The student will be able to list at least three examples of foods in each of the four basic food groups.
3. Given an nutritionally balanced menu for one day, the student will be able to group the goods according to the food group in which the goods belong.
4. The student will be able to construct a nutritionally balanced menu consisting of meals and snacks for one day. The menu will contain examples of each of the four groups in the units determined by the USDA.

B. Learning Activities:

Criterion-Referenced Objective #1:
1. List as many different kinds of foods as possible in approximately 15 minutes. (day 1)
2. Through group discussion, establish a method by which the goods could be grouped. (day 1)
3. Lead the class to a common basis or organizing the kinds of foods which approximates the grouping of the USDA. (day 2)
4. Categorize the foods named in activity 1 according to the standard list. (day 2)

Criterion-Referenced Objective #2:
1. Review the named of the four food groups. (day 3)
2. Gather pictures of foods from magazines and charts. (day 3)
3. Group the food pictures according to the good groups in which they belong. (day 4)
4. Draw pictures of foods belonging in the food groups if magazine pictures do not provide enough examples.

Criterion-Referenced Objective #3:
1. Review the names of the food groups in a class discussion. (day 5)
2. As a class, break down sample menus by grouping goods according to the four food groups. (day 5)

C. Materials:
1. chart of the four basic food groups
2. magazines
3. mounting paper for pictures
4. printed forms for daily menu

Unit Objective #2: The students will be able to identify the role of nutrients in the development of a healthy body.

A. Criterion-Referenced Objective:

1. Given a list of the five categories of nutrients (calaries, carbohydrates, proteins, vitamins and minerals, and fats) the student will be able to list two foods which represent each of the categories. (day 6)
2. The student will be able to identify the body part or parts most affected by the lack of five specfic vitamins by completing a chart. (day 7)
3. Given a list of the words calories, carbohydrates, proteins, vitamins and minerals, and fats, the child will be able to correctly match each of them with a phrase stating their purpose in terms of body development. (Quiz - day 8)

B. Learning Activities:

Criterion-Referenced Objective #1:
1. Review information from Finding Your Way pp. 36-39.
2. Construct an outline with the five categories as headings and food samples under each category.

Criterion-Referenced Objective #2:
1. Use over head projector to view transparencies on "Food and Nutrition"
2. Have the school nurse visit the classroom to discuss the role of nutrients in the development of a healthy body. (Include information about role of nurse as nutritionalist -- day 9)

Criterion-Referenced Objective #3:
1. Discuss material from pp. 36-39 of Finding Your Way.
2. Make a chart of the five categories and their purposes.
3. Develop and make a bulletin board display showing the concept of the role of nutrients and body development through pictures. (Teacher)

C. Materials:
1. Finding Your Way, pp. 36-39.
2. Transparencies, "Food and Nutrition".
3. Worksheet with human body outline.
4. Overhead projector.

Unit Objective #3: The student will be able to identify the roles of scientist in the development and improvement of processed foods.

A. Criterion-Referenced Objective:
1. Given the name and address of a company which deals in the processing of food, the student will be able to write a correct business letter to the selected company requesting material on the research department.
2. The student will be able to orally describe the processing

of one food product, including at least three steps and the role of at least one scientist in the processing to the food.

3. The student will be able to interview one person from the food processing research field and report the results of this interview to the rest of the class.
4. The student will be able to list at least four ways in which scientists have contributed to the development and/or improvement of a specific processed food.
5. The student will be able to identify at least three of the problems encountered by a scientist in the development of new processed foods of the modification of an existing method by writing a diary with the student assuming the role of a research scientist who is involved in this process.
6. The student will be able to match a list of the names of careers in food processing research and a list of these peoples' responsibilities.
7. Reports -- Day 10

B. Learning Activities:

Criterion-Referenced Objectives:

1. Use material provided by the research department of a food processing company to determine the importance of the scientists employed by the company.
2. Use materials as described above to discuss the processing of some foods.
3. Construct a chart on the role of the various specific positions of scientists in the development and/or improvement of processed food.
4. Trace the development of the processing of at least three food products (products will be determined by information available at the time of the activity).
5. In small groups, develop examples of food which will probably be processed in different ways in the future.
6. Share finished diaries with the rest of the class. Discuss common problems of the imaginary scientists.

Unit Objectives: The student will be able to list government agencies which control the preparation and processing of food.

Criterion-Referenced Objectives:

1. Given a list of the names of five government agencies involved with the regulation of nutrition standards and advertising, the student will be able to state the function of each of the agencies.
2. The student will be able to state at least 5 responsibilities of the United States Food and Drug Administration and information of at least four other government agencies which regulate the preparation and processing of food, the student will be to complete a chart defining the responsiblities of each of the agencies in the student's words.

3. The student will be able to state at least three ways in which the University of Delaware Cooperative Extension Service aids in consumer education. Ask 4-H Club members for comment or have child write Extension service about this role. Extra credit.
4. The student will be able to state at least 5 responsibilities of the United States Food and Drug Administration.

B. Learning Activities:
1. Student developed game for matching agencies and their responsibilities.
2. Chart illustrating the responsibilities of the US Food and Drug Administration (use information obtained from the Administration) Teacher-student committee project.
3. Class discussion on the role of the Extension Service as a disseminator of consumer information and education.
   a. Ask student to talk to their parents about occasions on which the parents might have referred to the Extension Service.
   b. Discuss responses to parent survey on the Extension Service.
   c. Invite a representative from the Extension Service to visit the classroom to describe first hand the ways in which they deal in consumer education (lead for guest speaker -- Miss Marguerite Krachhardt)

C. Materials:
1. Information from the US Food and Drug Administration and the University of Delaware Extension Service.

Unit Objectives: The student will be able to identify appropriate standards of sanitation in food processing and preparation.

A. Criterion-Referenced Objectives:
1. The child will be able to state orally at least five criteria which are included on the county standard list for food preparation and processing.

B. Learning Activities:
1. Guest speaker from New Castle County Division of Public Health (refer to Mr. Skinner; 994-2506)
2. Individual examination of materials provided by Division of Public Health (sanitation inspector check lists, county health codes, etc.).
3. Discussion of guest speaker's visit and review of materials.
4. Record important facts about guest speaker's visit in Career Education notebooks and in class scrapbook.
5. Bulletin Board display on County Public Health Services will be made by the teacher and students.

C. Materials:
   1. Materials provided by Division of Health Public.

Unit Objective: The student will be able to identify appropriate standards of sanitation in food processing and preparation.

A. Criterion-Referenced Objective:
   1. Given a series of five steps in the preparation and handling of a specific processed food which included one step which does not conform to county public regulations, the child will be able to state which step would be unacceptable to a sanitation inspector.

B. Learning Activities:
   1. Establish an imaginary kitchen in the classroom, with clearly defined areas for specific processes in food processing and preparation.
   2. Have the children assume roles of food service workers and practice preparation of foods. Their action should conform to county health standards.
   3. Discuss as a group the necessary steps in appropriate food preparation.
   4. Make a chart stating the steps developed in activity 3.
   5. Develop a "Trace the Bacteria" Game as a class. Leave the game out for class use during free time.

C. Materials:
   1. Boxes or binders for making out kitchen areas.
   2. Student-developed materials to make "Trace the Bacteria" game.

Unit Objective: The student will be able to compare and contrast honest and misleading methods of advertising and labeling.

A. Criterion-Referenced Objectives:
   1. Given five container levels of processed food products, the child will be able to state at least five common elements of the labels.
   2. Given a list of ten common elements of processed food product labels as developed by the student, the student will test the accuracy of the list by comparing the items of the list with the elements on the food label. The student will be able to state any discrepancies.
   3. The student will be able to compare and contrast the class developed list on common elements of processed food product labels with the list of government requirements for the labels.
   4. Given information on the actual contents of a processed food product, the student will be able to draw a misleading food container.
   5. The student will be able to state if a peer-presented dramatization of a commercial for an imaginary food produce in the commercial is compared with a fact sheet about the product.

6. Assuming the role of a television advertiser, the student will be able to dramatize a misleading commercial for a product of his or her choice.
7. The student will be able to write a correct business letter to a Wilmington based company requesting informa- about their advertising program. The acceptability of the letter will be determined by writing letters section of the English text.
8. Give students the list of requirements. Must be completed within given time period.

B. Learning Activities:
1. Gather food product labels from as many different food products as possible.
2. Display government information on requirements for processed food product labels.
3. As "homework" have the students watch commercials closely and identify different ways in which information is processed in different commercials. Small groups of children should create impromptu performances on specific topics to encourage more self-assurance about acting in front of a group (Examples: man interviewing a dog about a new dog food, lady interviewing the inventor of tickless clocks)
4. Invite a representative from the advertising company to visit our class and discuss his or her job.

C. Materials:
1. Labels of processed food products.
2. U.S. Food and Drug Administration information concerning label requirements for processed foods.
3. English 4, Laidlaw Brothers, River Forest, IL, 1967.
4. Addresses of Wilmington companies (use Wilmington telephone directory)

D. Extra Activities -- may be used in an auxilary learning station

1. Ask the children to bring in cans of food products on which the weight and prices are clearly marked. All cans will be returned unopened and undamaged.
2. Review the contents and computation involved in division.
3. Determine the unit price of each product by division.
4. Compare unit prices of similar products.
5. Discuss the effects of varying quality on unit pricing comparisions.
6. Determine unit prices for two products which are similar in weight and quality. Determine the most economical product according to the unit price.

Unit Objective: The students will be able to list personal goals for improving their health.

A. Criterion-Referenced Objectives:
1. The student will be able to state at least three ways in which he or she practices good health habits.

2. The student will be able to state at least three ways in which he or she has improved his or her health habits during the last three years.
3. Given a list of ten health habits, the child will be able to categorize them under the headings "Good Health Habits" and "Bad Health Habits."
4. Given a story describing the adventures of an imaginary child during the course of one day which contains five bad health habits, the student will be able to state the five bad health habtis contained in the story.
5. The student will be able to state three ways in which he or she could improve his or her health habits. Any sincere answer should be acceptable.
6. The child will be able to design and draw a poster stating and showing either, a good or a bad health habit. Acceptability of the finished paper will be determined by the instructor.

B. Learning Activities:

1. Class discussion on good and bad health habits. Discussion information will depend on experiences of the group and the group's retention of concepts from Finding Your Way.
2. Small group discussions with the teacher should encourage students to assess their personal health habits.

C. Materials:
1. Finding Your Way; story of a child and his or her advertures (to be developed by the teacher)
2. poster paper

EVALUATION

I. Name the four basic food groups

1. _____
2. _____
3. _____
4. _____

II. Match these government agencies and their functions:

_____government agency	1. function of government agency
_____government agency	2. function of government agency
_____government agency	3. function of government agency
_____government agency	4. function of government agency
_____government agency	5. function of government agency

III. Give three examples of good health habits and three examples of bad health habits:

GOOD HEALTH HABITS

1. _____
2. _____
3. _____

BAD HEALTH HABITS

1. _____
2. _____
3. _____

IV. Other evaluation items would come directly from CRO's specifically.

Pretest form would center on class discussions of health standards without any formal study of the topic. There would be no formal written pretest for this unit.

BIBLIOGRAPHY

1. Anderson, Jean, Food is More than Cooking, Westminister Press, 1968.
2. Podendorf, Illa, Food is for Eating, Childrens Press, 1970.
3. Showers, Paul, What Happens to a Hamburger, T. Y.-Crowell Co., 1970.

Transparency Sets:

1. Food and Nutrition, E.R.S. 1973.
2. Health and Cleanliness, E.R.S. 1973.

Unit Title: NUTRITION

I. Unit Overview: This work is designed to use intermediate pupils' natural interest in food and focus his attention to the world of work that food procurement makes necessary for all members of all societies whether primative or contemporary and modern.

Pupils will have opportunities to take active part in action oriented work of a realistic nature.

This effort has no pretension to comprehensiveness but suggests a few ways in which to approach the move toward effective career education.

II. Unit Content Outline:

A. Nutrition - Seeds
   1. Things needed to grow a garden
   2. Selecting seeds for a garden
   3. Drawing desirable garden harvest
   4. The scale drawing of a garden
   5. The hula-hoop and the vegetation count

B. Nutrition - Who Feeds Us?
   1. Food industry jobs - What workers do
   2. Research and report on one job - job-list
   3. Writing an approvable lunch menu

C. Nutrition - Foods at School
   1. Raw foods - part of a balanced diet
   2. The school menu - basic elements we need
   3. Writing an approvable lunch menu

D. Nutrition - Indian Food
   1. Museum trip: local museums or Indian Dig
   2. Indian work and modern work of food procurement - a table
   3. Reporting the Indian work day
   4. Model - Indian village life

E. Nutrition: A job
   1. Reading and research
   2. Writing job description

III. Unit Objectives: #1
   1. Pupils will be able to discuss the relationship of nutrition to the work of food growing.
   2. Pupils will discuss the relationship of nutrition to the work of food growing and state definite soil requirements and labor involved.

IV. Unit Description:

A. Criterion-Referenced Objectives:
   1. Pupils will be able to name five or more essential requirements of growing a food garden in a mini-test.
   2. Pupils will be able to make use of catalog material independently and list seeds he will buy and justify his selection reasonably.

3. Pupils express themselves in realistic or extravagent color portrayals of garden products of their "harvest."
4. Pupils will be able to make a scale-drawing representing a home garden using metric measurements.
5. Using hula-hoops small groups examine vegetable plots to find soils' potential to support numerous plant species.

B. Learning Activities:
1. Class discussion under topic "What things are needed to grow a harden?" will lead pupils to contribute the following ideas:
   a. A suitable soil, drained, open to the sun.
   b. Water -- rain/or irrigation.
   c. Protection from animals and trespassers.
   d. Tools, motors, pesticides.
   e. Seeds and transplants.
   f. Work.
   g. Need to establish limits -- realistic planning, time willing to give. Who will help with motor experiment and dangerous pesticides?
2. Pupils will be able to persue seed catalogs as an independent activity in selecting seeds for "crops" they might choose to grow. In a followup sharing time pupils will show some realistic grasp of their own abilities and limits in problems:
   a. How much land can I spade?
   b. How much time can I give?
   c. Adult helps when needed?
   d. Have I chosen crops suited to the space and season?
   e. Rewards I can expect? apples? radishes? wheat?
3. Pupils, upon completion of one hour in art class, will be able to show or hang their color portrayals of their expected garden harvest. Pupils should be free to choose media and degree of realism and focus. Teacher requirements might include that: (a) paper be filled, i.e. draw large, (b) leaves and stems be represented, (c) colors be in reasonable range of expectations - a tomato is red or yellow, (d) pupils may refresh their minds by reexamination of catalog pictures but are not to trace or copy.
4. Scale drawings on 2' by 3' sheets of wrapping paper will be made by pupils using centimeter rulers, (suggested scale 1 cm - 1 foot) showing the space allotted to each crop in his garden plan. Symbols may be used to represent plant placement. A title, labels, given scale and signature required on completed work.
5. Pupils, in groups of four, use hula hoops to delimit a vegetation plot. They find and count (and identify by name if possible) each different kind of plant that occurs within the confines of the hoop. Random site selection provides interesting differences - a wooded area differs greatly from a grassy lawn or a wild meadow. Springtime is best because many plants have emerged but are not yet combersome in size. Specimen leaf collections become interesting displays

and leads naturally to a consideration of the reasons for the variabilities in count and species occurance and soils wide range of productability.

C. Materials:
1. Coordinate activity with social studies work on regions and products.
2. Old and current seed house catalogs: Agway, Burpees, etc.
3. Pictures in color of garden products. Seed catalogs.
4. Centimeter rulers - 2' x 3' sheets brown wrapping paper.
5. Hula hoops--1 for each 4 pupils (hoops are available from some physical education departments).
6. News print type magazines for collection presses.
7. Books on food, gardening, farming:
   a. About the Vegetables on your Plate, by Veva Elwell Allee, Melmont Publishing, Inc., Chicago, 1960.
   b. About Farming, by Irma Balan Johnson, Melmont Publishing, Inc., Chicago, 1962.
   c. Perhaps I'll be a Farmer, by Ray Bethers, Aladdin Books, Inc., New York, 1950.

Unit Objectives: Nutrition--Who Feeds Us? #2
1. The pupils will be able to relate in detail how each worker contributes to our nutritional needs.
2. Pupils will be able to write a description of some of the functions of five or six workers chosen from the list of twenty. (interim)

A. Criterion-Referenced Objectives: After study of a food industry poster:
1. Given a list of 20 food industry workers pupils will be able to write a description of the work done by five or six.
2. Pupils who choose to do independent reading in a chosen field of work such as "veterinarian" may limit his description to the function of that one specialist.

B. Learning Activities:
1. Pupils examine a wall poster or montage of workers in many fields in the food industry and then select five or six to write about telling what each worker does in his job mentioning specific acts and operations.
2. Pupils limiting themselves to a chosen field of work will write in detail about the function of the worker reflecting the pupils special preparation and library work.

C. Materials:
1. Teacher prepared montage poster of workers in the food industry centered around the list of 20 related occupations as follows:

20 Food Industry Workers

1. Kitchen helpers at home - mother, father, boys, girls
2. Restaurant help - steward, chef, cooks, cook's helpers, waiters, waitresses, bus boy, dishwashers, cashier, manager.
3. Dieticians - hotel, hospital, writer
4. Biochemist
5. Doctors - pediatrician, diet experts
6. Pure Food and Drug Administration - officers, agents, inspectors, lab technicians.
7. Farm workers - grower, field hands (migrant harvesters), hired men.
8. County agent
9. 4-H club leader
10. Veterinarian
11. Breeder
12. Artificial Inseminator
13. Rancher (ranch hands, cowboys)
14. Truck drivers
15. Cannery help (fruit, vegetable, fish, meat)
16. Freezer help
17. Meat-packer help
18. Fishermen
19. Store workers - counter help, cashier, stock boys, meat cutter, packers, delivery
20. Wholesalers and distributors

Unit Objective #3: Pupils will become acquainted with raw vegetables and fruits as basic elements of a balanced diet.

A. Criterion-Referenced Objective:
1. Pupils will prepare and serve a mid-morning snack featuring raw vegetables and fruits that satisfy certain basic nutritional requirements.

B. Learning Activities:
1. A committee of pupils will, under the teachers direction, prepare a raw vegetable and/or fruit for the class snack. Preliminary discussion should center on work habits expected of persons employed in food industries. Instructional directions will cover:
   a. Preliminary washing of hands
   b. Washing peeling, if necessary; cutting or slicing; and arranging the food attractively on a serving plate.
   c. Serving the "customers." (By playfully entitling the work roles assumed here as "cook," "chef," "waiters," "scullery aid" the pupils will associate the task with a career.

C. Materials:
   1. Resource persons: cooperating parents, neighbors
   2. A source of raw vegetables, fruits

Unit Objective #4: Pupils will select items from school menus and relate them to basic nutritive elements.

A. Criterion-Referenced Objective:
   1. The pupil will be able, upon selecting his favorite school menu, to state in chart form which food item matches which basic nutrition requirement.

B. Learning Activities:
   1. Individual pupils examine the school lunch menu of the week. (extra copies obtainable at school office)
   2. Pupils will discuss their favorite lunches. While interest in high pupils are asked to study food charts and/or science-health texts to ascertain the nutritional values of the items on the favorite lunch. (charts may be posted in learning station style for pupil perusal)
   3. Pupils should complete this one-period study by writing in chart form the food items matched with nutritive classification, e.g.:

spaghetti meat sauce cole slaw	carbohydrate protein, fat, vitamins

   4. Pupils wishing to do further work can be referred to library books on display in the classroom. (see materials). Topics for pupil reports should be limited to a particular area or aspect. Suggestions:
      a. "Products Made from Milk"
      b. "Why Carbohydrates"
      c. "Our Need for Minerals"
      d. "Our Need for Vitamins"
      e. "Sources of Fat"
      f. "Foods that Provide Vitamin C"
      g. "Some Trace Elements"
      h. "Calcium is for . . . "
      i. "Green and Yellow Vegetables"

C. Materials:
   1. One current school menu for each participating pupil.
   2. Standard food charts
   3. Booklet:
      a. "How Your Body Uses Food" by Albert Piltz. Ph.D.; National Dairy Council, Chicago, 1964.

Unit Objective #5: Pupils will write lunch menus that reflect their grasp of basic nutrition requirements.

A. Criterion-Referenced Objective:
   1. Pupil committees will submit to the cafeteria manager for consideration a week's lunch menu that reflects a sound grasp of basic nutrition requirements.

B. Learning Activities:
   1. The science class will form five committees (one for each day of the school week) to plan menus for a week acceptable for cafeteria use throughout the district.
      a. The work requires cross-checking between committees to ensure variety in the menu of the week.
      b. Each committee will work under guidelines concerning basic food requirements as presented in the health and science texts. It is best if committee members consult such material out of the needs they feel rather than as handed down assignments to cover.
      c. Upon presentation to the whole class of the Monday, Tuesday, Wednesday, Thursday, Friday menus the committee members will state justification for each item chosen in respect to its nutritive function, e.g. "The bread and butter provides for a part of our body's need for carbohydrate, fat, protein and vitamins if enriched flour is used," or "The minute steak is protein, a nutrient that provides growth, replacement of cells, antibodies, and elasticity for blood vessels."
      d. The resource person will evaluate the final boarded chart of the pupil's menu week.

C. Materials:
   1. Health and science texts
   2. Standard food charts
   3. Resource persons: cafeteria manager, dietician, school nurse

Unit Objective: Nutrition - Indian Food #6

1. Pupils will be able to write a table of primative work tasks and modern equivalents to write a narrative report on the work day in an Indian Village.

A. Criterion-Referenced Objectives: Having viewed local or city museums and/or Indian Digs with lecturer or guide pupils will be able to:
   1. Write a comprehensive table of primative work tasks and modern equivalents, or
   2. Write a report on the work day in an Indian Village.

B. Learning Activities:
   1. Pupils make library selections on American Indian life and table books in classroom for class use.

2. Class visits local or city museum and/or Indian Digs with lecturer-guide focusing attention on work life of primatives.
3. Pupils write a table of work tasks of the primative group studied and show modern equivalents (where existent).
4. Pupils write a report on a particular occupation of an Indian Village member in relationship with other members showing a degree of interdependence.
5. Pupils build model Indian Village to illustrate labor roles related to nutritional needs of the people.

C. Materials:
1. Resource persons: museum lecture-guide
2. Selection of library books on American Indian life.

Unit Objective: Nutrition - A Job #7
1. Pupils will be able to write a description of the work done by a worker in a specific job.

A. Criterion-Referenced Objective:
1. Pupils will be able to describe the work of a chosen job in the field of food production in a written report. The paper will reflect the reading and "research" the pupil has done on the topic.

B. Learning Activities:
1. Pupils select a job in the field of food production such as farms, ranch hand, trucker, waiter, etc., and read stories, pamphlets, encyclopedia articles, other, and write a report which traces the step by step work that must be done in the job routine.
2. Pupils hould make an effort to portray more than the mechanics of motion and show the human elements of the working man on the job. Considerations should be given to several of the following aspects:
   a. Title of Job?
   b. How is work performed:
      --hand operation
      --machine controlled
      --partly hand; partly machine
   c. Is worker well paid?
   d. Are work conditions pleasant?
   e. Hazards of the work?
   f. Sepcial interests of the work?
   g. Monotony and/or hardships?
   h. Where is work done?
   i. What would next step in job advancement be?
   j. Is work solitary or part of a group effort?
   k. How long does it take to perform each part of the work?

C. Materials:
1. World Book Encyclopedia, Filmstrips on occupations
2. Library:
   a. "I want to be . . . " series
   b. "First Book of . . ."series

Unit Title: DEVELOPMENT OF NATURAL RESOURCES

I. Unit Overview: The purpose of this unit is to help the student develop an understanding of the resources of nature that man utilized to serve his needs. This unit is intended to identify areas of natural resources, the manner in which the resources are utilized, and the job inter-relationship involved in obtaining the resources.

II. Unit Content Outline:

A. Water
   1. Water is necessary to living things
   2. Where does water come from
      a. Underground
      b. Surface
   3. Uses
      a. Growth of living things
      b. Transportation
         -- Recreation
         -- Work
      c. Power
         -- Hydroelectric
         -- Nuclear
   4. How Obtained
      a. City
         -- Processing Plants
         -- Dams
         -- Reservoirs
         -- Lakes
      b. Rural
         -- Wells
         -- Springs

B. Soil
   1. Importance as a resource
   2. Types
      a. Top soil
      b. Sub soil
   3. Agriculture (shovel, screw)
      a. Importance of top soil
      b. Availability of water
      c. Fertilizers
   4. Geology
      a. Information about earth
      b. Food production (agronomist)

C. Minerals
   1. Needed by men for centuries
      a. Weapons
      b. Building
   2. How discovered in U. S.
      a. Magnets confused
      b. Cleaned one for processing
         -- Mining
         -- Machine operators (earth movers)

3. Uses
   a. Industry
   b. Automobiles
   c. Airplanes
   d. Buildings

D. Timber
   1. Where Found
      a. Pacific Northwest
      b. Northern Forest
      c. Southern Forest
      d. Central Hardwood Forest
      e. Rocky Mountains
   2. How obtained
      a. Loggers
      b. Mill operations
   3. Uses
      a. Wood Products
      b. Chemical products
      c. Pulp products

III. Unit Objectives: Water

1. The student will be able to recognize the importance of water to living organisms.
2. The student will be able to identify the two main sources of water underground and surface. The student will also be able to demonstrate his knowledge of the manner in which water is obtained form the two main sources.
3. The student will be able to describe the uses of water as a natural resource and explain the various occupations associated with water-related industries.

Unit Objectives: Soil

1. Students will be able to identify the two main components of soil-top and sub-soil, and be able to describe how each are formed.
2. The student will be able to explain the dependence of occupations in differing regions on soil type and quality.
3. Students will be able to list the component agents that are necessary in order to maintain soil fertility; and demonstrate an awareness of the job-related roles that pertain.
4. Students will be able to recognize the part soil analysis plays in learning about the earth in general, and vice versa.
5. The students will be able to suggest the ways in which science benefits agricultural production.

Unit Objectives: Minerals

1. Students will discover the manner in which iron and other minerals first found the uses it was put to.
2. Students will be able to describe the five types of mining that are employed and name any special equipment or jobs involved in that type of mining.
3. The uses of iron, oil, and uranium identify by name the industries that the mining of them create.
4. Students will be able to predict future occupations that may develop concerning the use of iron.

Unit Objectives: Timber

1. Students will be able to locate the major commercial sources of timber in the U. S.
2. Students will be able to describe the process by which timber is converted into useable materials.
3. Students will be able to classify the three major areas of timber use (wood products, chemical products, pulp products), and will be able to differentiate between job roles created in each major area.

IV. Unit Description:

Unit Objective #1: Water
The student will be able to recognize the importance of water to living organisms.

A. Criterion-Referenced Objective:
   1. Given material concerning an area of severe drought, the student will list five effects of a prolonged lack of rain upon the area.

B. Learning Activities:
   1. Each student puts one flower (with stem) in a vase with water and another flower in a vase without water. Keep record of development.
   2. Viewing and discussing (of filmstrips, magazines, newspapers, etc.) an area of drough (U.S. Dust Bowl, Africa, etc.)

   The students will be placed in two heterogeneous groups. While one group does (or records) lesson #1, the other group will work on lesson #2 (materials are changed as interest warrants).

C. Materials:
   1. Two flowers (of same type) for each child
   2. Two vases for each child
   3. Paper or notebook to keep record
   4. National Geographic
   5. Newspapers
   6. Filmstrip(s)

Unit Objective #2: Water
The student will be able to identify the two main sources of water--underground and surface. The student will also be able to demonstrate his knowledge of the manner in which water is obtained from the two main sources.

A. Criterion-Referenced Objective: #1
   1. When given a list of terms, the student will be able to correctly write the term "ground water" or "surface water" next to each appropriate statement in four out of every five cases as an average.

B. Learning Activities:
   1. View filmstrip about ground water. Discuss.
   2. Construct a model of a source of ground water. Do this by putting subsoil in a waterproof container; then place snad and topsoil on top of it. Water the surface periodically, dig a "well" in the soil. Discuss, then draw a picture of a cross-section of soil and ground water as it may appear in this area. (Students may dig a hole an area at home, making sure to fill it in completely when done. Study topsoil, etc.)

C. Materials:
   1. Filmstrip (ground water)
   2. Plastic container
   3. Soil samples (subsoil, topsoil, sand)
   4. water

A. Criterion-Referenced Objective: #2
   1. The student will be able to identify and describe all the subsequent steps in the water cycle when given any one step in that cycle.

B. Learning Activities:
   1. Evaporate a pan or pot of water over a hot plate. Discuss what is happening as each child places his hand over the pot and holds it there for approximately one minute.
   2. Show pictures of Hurricane Agnes disaster in PA. Discuss why rain could cause so much damage.
   3. The students discuss where fresh water joins salt water, with an emphasis on answering the question "If the ocean is so much larger, why doesn't salt water flow further up into the rivers? (fishing)

C. Materials:
   1. Pan or pot
   2. Water
   3. Heat Sources
   4. Pictures of effects of "Agnes" or some other flood.

A. Criterion-Referenced Objectives: #3
   1. Given a contour relief map of Delaware and Pennsylvania the student will draw or construct a model of the manner in which rain travels from a high point in the mountains in Pennsylvania, to the Atlantic Ocean.

B. Learning Activities:
   1. Filmstrip about Running water
   2. Make contour maps of Southeastern Pennsylvania, and Delaware. Paint in the major vegetation regions and the water transport system for the region.

C. Materials:
   1. Filmstrip (Running water)
   2. Map making equipment or pre-made contour relief maps with streams and river/bay system contained.
   3. Clay (optional)
   4. Books, magazines, etc. as sources of information.

Unit Objective #3: Water
The student will be able to describe the use of water as a natural resource and explain the various occupations associated with water-related industries.

A. Criterion-Referenced Objective: #1
   1. Starting with information concerning a depository of surface water (lake, reservoir, river) the student will be able to explain the process by which water is made safe to drink, for the city.

B. Learning Activities:
   1. As an introduction, have students discuss the possibility of a large city drawing its water from rivers of wells. Students will then read and examine sources of information relating to water purification. Care will be taken to explain the role of engineers, chemists, etc. in the discussion which follows.
   2. Using reference materials the students will locate information pertaining to the exact sources of water for four or five major cities in the U. S.

C. Materials:
   1. Books about water purification
   2. Reference material concerning cities in U. S.

A. Criterion-Referenced Objective: #2
   1. The student will demonstrate, by writing, his mastery of, the knowledge of sources of water in the country. He will also be able to compare and contrast the different methods of obtaining fresh, pure water in both the city and country.

B. Learning Activities:
   1. Show pictures of people drawing water from wells. Discuss how it is possible to have wells in very dry areas.
   2. Have a resource person visit the class concerning the drilling for water and the related problems.

C. Materials:
1. Pictures of people using wells
2. Project described in Water Objective #, CRO #1, Learning Activities #2.

A. Criterion-Referenced Objective: #3
1. The student will be able, when given a map of an area, be able to explain how either goods or people could travel by water between two given points.

B. Learning Activities:
1. Give a ditto or an imaginary region with many different types of waterways. The students should trace the path a product would take by water to get from one place to another. The different types of vehicles corresponding to the waterway and the people involved with smooth travel of the product should be discussed. (smaller vessels to tankers, harbors etc.)

C. Materials:
1. Ditto of region (1 per student)
2. Books and references pertaining to harbors

A. Criterion-Referenced Objective: #4
1. The student will be able to list, to the teacher's satisfaction, the recreational activities that water provides.

B. Learning Activities:
1. Break class into groups of three or four. Each group then discusses and makes a list of recreational activities that water provides. When each group has had an alloted amount of time, the whole group assembles to discuss and compile a single list.
2. Taking each activity generated above, each small group reassembles for the purpose of making a list of jobs and products necessary to undertake those activities.

C. Materials:
1. Magazines

A. Criterion-Referenced Objective: #5
1. The student will be able to describe in writing how water is able to do work.

B. Learning Activities:
1. Each child constructs a miniature paddlewheel that will turn when placed under a stream of water. Take metal shears and cut narrow strips of metal from a can. Take these strips and bend over a small flap to a sewing spool. Do this with about six strips. Put a pencil through the spool and place the spool and pencil on a wooden frame that will allow the spool to turn as water is run over the flaps of the spool. Discuss how this turning can do work (such as turn a motor that supplies electricity). (hydroelectric concept)

2. A Separation: How do engineers get water flowing fast enough to generate the energy large cities need? Lead discussion to subject of dams and their use, people involved in construction, operation, and benefited by the dam.

C. Materials:
1. A wooden spool
2. 1 tin can
3. approximately 20 small nails
4. 1 pencil
5. pieces of board
6. metal shears
7. 1 hammer
8. filmstrips on dams
9. magazines on dams
10. books on dams

A. Criterion-Referenced Objective: #6
1. When given a list of situations pertaining to home and industry, the student will be able to explain to the teacher's satisfaction the part that water plays in that particular situation.

B. Learning Activities:
1. The instructor should discuss with the students how water is used in industry. Have them rub their hands together - then pieces of metal. Ask them if industry and factories also create heat while working? Set up an experiment by heating pieces of metal and placing them in a pan of water, the temperature of which had been recorded before using. Demonstrate to student's satisfaction, the heat of the metal before placing it in the water pan. Watch the temperature change in the water. Discuss how this experiment relates to water cooking in factories. (filmstrip, if possible)
2. Each child makes a list of home uses of water. In large group, compile a single list. Make a bulletin board of uses.
3. Discuss and illustrate reading water meter at home in order to find the amount of water used over an extended period of time.

C. Materials:
1. pieces of metal (small enough to heat in a pan)
2. pan
3. heat source
4. thermometer
5. filmstrip
6. poster paper
7. pictures of water uses

Unit Objective #1: Soil
The student will be able to identify the two main components of soil--topsoil and subsoil, and be able to describe how each are formed.

A. Criterion-Referenced Objective: #1
   1. When shown a diagram of soil layers (without layer names), the student will be able to correctly write the term "topsoil" or "subsoil" in the appropriate layer on the diagram.

B. Learning Activities:
   1. Go outside and either dig away a fresh vertical cut in an existing dirt bank or dig a hole approximately 2 feet deep (or as deep as necessary to show topsoil and subsoil layers). Draw a picture, in actual size, of the appearance of the cross-section, showing layers, vegetation, rock, etc. When in classroom discuss names of elements in drawing.
   2. After discussing what topsoil is composed of, pose question "What is subsoil made of?" Demonstrate weathering in class. Go outside and find examples of weathered rocks. Discuss what weathers them.
   3. Show pictures of different regions and write which layer would be predominant in that region. Discuss when completed.

C. Materials:
   1. shovel or auger
   2. construction paper
   3. crayons
   4. weatherd (crumbling) rocks (limit size)
   5. pictures of different regions of United States

A. Criterion-Referenced Objective: #2
   1. The student will be able to list five component elements of topsoil and be able to identify which element would be most predominant in a certain area.

B. Learning Activities:
   1. Each child obtains a sample of topsoil from his home area. He then using a magnifying lens, examines and lists any parts he can identify from his soil sample.

C. Materials:
   1. topsoil from home (limit amount)

Unit Objective #2: Soil
The student will be able to explain the dependence of occupations in a region on the soil type and quality.

A. Criterion-Referenced Objective: #1
   1. The student will be able to identify which type of soil, or subsoil, is best for growing plants. He will also be able to state two reasons why topsoil is more conducive to growth than plain subsoil.

B. Learning Activities:
1. Each child will obtain a sample of topsoil and a sample of subsoil. He will put each in a growing pot. Place ten seeds in each pot--keeping the soil moist, place the pots in the sun, keeping the conditions similar in each pot. Watch and observe which pot grows the best plants. Keep a record on development.

2. Make a wire basket and place samples of topsoil and subsoil in it one at a time. Dip each basket into a bowl of water and gently agitate the basket. Do this with each basket, carefully observing the process and the residue, if any, that is left. Ask, why and what is left in each basket? What does this mean for plants growing in each?

C. Materials:
1. 2 identical pots (each child)
2. samples of topsoil and subsoil (separate)
3. 20 seeds for each child
4. wire baskets
5. bowl of water
6. soil samples similar to those above

A. Criterion-Referenced Objective: #2
1. The student will state, to the teacher's satisfaction, what the effects of topsoil depth, amount of humus and degree of use, are concerning uses of the land.

B. Learning Activities:
1. By reading material, viewing appropriate filmstrips, and developing experiments, the students can discover the varying thickness and composition of topsoil.
2. Sharing of knowledge, the children, in small groups, can speculate on probable uses of the land (besides forming) a list of these uses could be made.

C. Materials:
1. books
2. filmstrips

Unit Objective #3: Soil
The students will be able to list the component agents that are necessary in order to maintain soil fertility--and demonstrate an awareness of the job-related roles that pertain.

A. Criterion-Referenced Objective: #1
1. Given a list of substnaces which could be added to soil, the student will, to the teacher's satisfaction, be able to write a description of the advantageous properties of each substance.

B. Learning Activities:
1. Experiments could be developed, using numerous growing pots with the same type of seeds. Each pot should have different amounts of water, topsoil, sunlight and

other nutrients such as fertilizer and miscellaneous growing compounds. Before the use of the fertilizer, time should be set aside for discussion of the material that plants use from the soil and the necessity of putting some back into the soil for the future. Accurate records should be kept. Each pot could be labeled stating the conditions being controlled.

C. Materials:
1. growing pots
2. fertilizers
3. seeds of same type

A. Criterion-Referenced Objective: #2
1. The students will be able to explain the role of chemists, experienced farms, factory workers, and transportation workers in the production and delivery of soil additives.

B. Learning Activities:
1. The interdependence of many types of workers is very evident in the development and use of a product such as fertilizer. Role playing (after discussion) of the jobs needed may be effective. A bulletin board display could be developed showing the development, distribution and use of the product concerned.

C. Materials:
1. books
2. poster paper
3. crayons
4. magazines

Unit Objective #4: Soil
Students will be able to recognize the part soil analysis plays in learning about the earth in general.

A. Criterion-Referenced Objective: #1
1. Each student will be able to suggest an acceptable answer explaining the different color, or composition of various soil samples.

B. Learning Activities:
1. Each child will collect two or three rocks of different appearance. He will then "weather" the rocks, making a pile of pieces of each rock. This "weathering" can be done by scraping the rock with a piece of metal. The student could then draw a picture illustrating what a picture region with that type of rock might look like.

C. Materials:
1. different rocks
2. a "scraper" (metal, preferably)
3. drawing paper
4. crayons or paint

A. Criterion-Referenced Objective: #2
   1. The student, using the globe, will be able to write the possible continents that scientists feel may have once been joined together but are now separated by oceans.

B. Learning Activities:
   1. A group of students could prepare on drawing from an overhead projector of the main soil types on the earths surface.
   2. With this drawing the teacher could lead a discussion of how some scientists think that perhaps long ago whole continents, that are now separate, were once "hooked" together.
   3. Using a globe, each student could pretend that the oceans are not present, and try to put the continents together, watching out for the joining of soil types that match (in much the same manner that you would match jig-saw puzzle pieces together considering shape and color).

C. Materials:
   1. Overhead projector
   2. Drawing paper
   3. crayons or paints
   4. Books and magazine article on "Continental Drift"

Unit Objective #5: Soil
The students will be able to suggest the ways in which science benefits agricultural production.

A. Criterion-Referenced Objective: #1
   1. Given the name of a group of scientists, weather experts, chemist, farming, engineers, the student will be able to describe,to the teacher's satisfaction, the role each plays in helping the farmer of today to grow more and better crops.

B. Learning Activities:
   1. Show pictures of regions of the U. S. (or filmstrips) emphasizing the diversity of weather in different areas. Ask children to describe the weather there. Would it help to know about what causes certain types of weather in certain areas? How would this information help the farmers in that region?
   2. Discuss what happens if soil is used over and over again. A resource person who is involved with farming is a possibility here. Who can help build the soil up again to produce better crops? Discuss role to chemists in making fertilizers.
   3. Can a farm be planned poorly? (discuss what would happen if a farmer simply threw the seeds around a field and counted on weather alone to supply water.) Pictures could be drawn or painted depicting a poorly planned field. Who helps plan farms?

C. Materials:
1. pictures of different climate regions in U. S.
2. filmstrip of different growing regions
3. resource person farmer
4. books
5. magazines
6. possible films

Unit Objective #1: Mining
The students will discover the manner in which a valuable mineral was first found and list early man's uses of it.

A. Criterion-Referenced Objective: #1
1. Using books and magazines made available by the teacher, the student will be able to put on skit (in groups of 2, 3, or 4) dramatizing the discovery of one of the following minerals: iron, lead, copper, tin, gold, silver, diamonds, coal, oil, or uranium.

B. Learning Activities:
1. A display will be set up containing books, articles, newspaper clippings, etc., pertaining to the mining of various minerals. After a period of time doing research, the students will get together to organize a skit or short play to dramatize the discovery of a particular mineral.
2. Make a map of locations of minerals around the U. S. and world.

C. Materials:
1. books
2. magazines
3. newspapers
4. filmstrips

A. Criterion-Referenced Objective: #2
1. The students, as a group, will construct a time line depicting the discovery and early uses of the minerals listed in CRO #1 above.

B. Learning Activities:
1. This activity could be done by a group of 2 or the entire class. If done by an entire class it would be necessary to assign students to work on certain research areas, e.g. all information about iron, etc. When ready to assemble, the class can draw or paint time line, making sure to put all the information on it in a manner that is neat and usable.
2. Pictures could be drawn showing an early use of a mineral or its discovery.

C. Materials:
1. books
2. filmstrips
3. construction paper
4. crayons or paints

Unit Objective #2: Mining
The students will be able to describe the five types of mining that are employed and name any equipment or special jobs involved in that mining.

A. Criterion-Referenced Objectives: #1
   1. Given sources of information, the student will write the names of the five mining procedures and describe their implementation mentioning the special equipment or workers applicable to each. They should also list at least two minerals obtained by each method.

B. Learning Activities:
   1. The children doing this activity can use books, filmstrips, films (if applicable) or write to a mining concern such as Minnesota Mining & Manufacturing to obtain information about five mining techniques (places, dredging, open-pit, strip or quarring).
   2. Write a letter to mining organizations asking for information describing their operations.
   3. Invite a resource person to explain the duties and chores of a person associated with mining.
   4. Illustrate one of the methods of mining with a drawing or construction.

C. Materials:
   1. books
   2. filmstrips
   3. films
   4. stationery and envelopes
   5. mining resource person

Unit Objective #3: Mining
The students will gain an understanding of the uses of iron, oil and uranium. They will also be able to name industries that derive from those products.

A. Criterion-Referenced Objective: #1
   1. Using both school and home environments, the student will compile a list of at least five items, of products that are associated with iron, oil, and uranium.

B. Learning Activities:
   1. The students should have the opportunity to use books and articles containing suggestions about resource uses.
   2. The children could look around their homes or stores for ideas and products derived from iron, oil and uranium. A list should be made from ideas collected both at home and school.
   3. A flow chart of uses of mineral products (with an emphasis on iron, oil, and uranium) could be developed as a display.
   4. Graphs of mineral uses in U. S., mobiles or scrapbooks are further suggestions.

Unit Objective #4: Mining
The students will be able to predict future occupations that may develop concerning the use of iron, oil or uranium.

A. Criterion-Referenced Objective: #1
   1. With an eye to the future, the student will draw or construct a picture of a person who will be involved in an occupation (heretofore unheard of) concerning iron, oil or uranium. The student will describe the duties and importance of the person.

B. Learning Activities:
   1. Generate a discussion about products possible in the near and distant future. Make a list on the blackboard. Discuss whether men and women could do the work. What would they look like?
   2. Each child would then create a drawing on construction of a product (with description) and the person who may product it.
   3. Make a bulletin board display of "future uses of iron, oil and uranium."

C. Materials:
   1. construction paper
   2. paints, crayons

Unit Objective #1: Forestry
The students will be able to identify the major commercial sources of timber in the United States.

A. Criterion-Referenced Objective: #1
   1. When given a blank map of the U. S. the student will be able to draw in the boundaries of the five major commercial sources of timber. The areas drawn in will be evaluated by the teacher.

B. Learning Activities:
   1. Discuss directions on a map of U. S.
   2. Provide reading materials and filmstrips, if possible, pertaining to the regions that supply timber (northern, central, southern, rocky mountain, Pacific Coast)
   3. A report can be done using a timber region as a subject.

C. Materials:
   1. Map of U. S.
   2. Reading materials on timber regions

Unit Objective #2: Forestry
Students will be able to describe the process by which timber is converted into usable material.

A. Criterion-Referenced Objective: #1
   1. Starting with a tree in the forest, the student will be able to trace the steps necessary in making that tree into lumber.

B. Learning Activities:
1. Do a creative writing on "How a Tree Becomes a Board."
2. In a group the steps necessary in getting a tree from the woods to a mill.
3. Do a display of the process.
4. Show filmstrip.
5. Write letters to wood industries asking for information on the process.

C. Materials:
1. construction or poster paper
2. filmstrip
3. stationery and envelopes

Unit Objective #3: Forestry
Students will be able to classify the three major areas of timber use (wood products, chemical products, and pulp products), and be able to differentiate between job roles created in each major area.

A. Criterion-Referenced Objective: #1
1. Given a list of products made from wood, the student will be able to place each proudct under one of the three following headings: wood products, chemical products, or pulp products.

B. Learning Activities:
1. Class should be organized in groups of 2 or 3. Each group should compile as large a list as possible of products made from wood. When each group has finished come together in a large group and guide students to the three different classes of timber.
2. Read books and filmstrips.
3. Bulletin board.

C. Materials:
1. Books and filmstrips
2. Poster board or construction

A. Criterion-Referenced Objective: #2
1. Given one of the products that the student has listed, he will be able to name three people who are instrumental in developing that product. The student may use books, magazines, filmstrips, interviews, or whatever else is available to locate the information.

B. Learning Activities:
1. Tell each child to pick a product, then he is to tell or write at least three people who have jobs relating to the development of that product. The student may use books, magazines, filmstrips, interviews, or whatever else is available to locate the information.
2. Make a display of the development of a wood product from tree to consumer.
3. Role playing the various jobs associated in the development of a product is a possibility.

C. Materials:
1. books
2. magazines
3. filmstrips
4. construction or poster paper
5. crayons or paints

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Unit Title: TRAVELS OF A HANDFUL OF SOIL

I. Unit Overview: The unit on The Travels of a Handful of Soil falls under the broad conceptual scheme that: Living things are in constant change. The unit deals more specifically with the changes which occur in the environment - and even more specifically with change in the Earth's surface. The forces which cause these changes are investigated and categorized according to whether they are destructive or constructive changes. The composition and importance of soil is considered with emphasis placed on the value of soil conservation. Also covered is the importance of soil to agriculture and other related occupations.

II. Unit Content Outline:

A. The environment is in constant change
   1. The energy of moving water changes the Earth's surface
      a. water can carry soil over long distances
      b. moving water contains many particles
   2. The expansion of freezing water breaks down rocks
      a. freezing water expands
      b. expansion of water as it turns to ice has great force
      c. ice occupies a greater volume than water
   3. The expansion and the contraction
      a. unequal expansion and contraction can break rocks
      b. growing plants can break rocks
   4. Land worn down in one place is built up in another
      a. the earth's surface is always changing
      b. slow-moving water can build up land
      c. flooding rivers build up soil in valleys
      d. as water slows down at the mouth of a river, it deposits soil
   5. Plants reduce erosion
      a. plant roots hold soil
      b. trees hold soil with their roots and they provide cover
      c. cover crops hold soil
   6. Pressures on and in the Earth cause mountains to rise
      a. the pressure of sediment may cause mountains to rise
      b. the Earth's rocks deep below the crust flow like a liquid

III. Unit Objectives: At the completion of the unit on "The Travels of a Handful of Soil" the student will be able to:

1. Describe how the energy of moving water changes the Earth's surface.
2. Recognize and cite evidence that the expansion of freezing water breaks down rocks.
3. Recgonize that the expansion and contraction of rock, and the force of growing plants, help break down rock.
4. Describe how land worn down in one place is built up in another.
5. Demonstrate that plants reduce erosion.

6. Relate how pressures on the Earth cause mountains to rise.
7. Investigate occupations related to soil management - e.g. farming, geologist, soil conservationist, agronomy, etc.

IV. Unit Description:

A. Criterion-Referenced Objective:
   1. Given a list of five occupations and a list of activities related to the occupations, the student will be able to match the occupation with the activity in at least four or five problems.

B. Learning Activities:
   1. Children will write to Soil Conservation Services, Forest Services, Bureau of Land Management and other agencies to learn of career opportunities in these various disciplines.
   2. In class the students will discuss how important the soil related occupations are.

C. Materials:
   1. paper
   2. pencils

Unit Title: THE BOUNCE OF SOUND

I. Unit Overview: The unit on the Bounce of Sound is based on the concept that a loss or gain of energy affects molecular motion. Through investigation the children will learn how sound is made and how the amount of energy used to produce the sound affects the pitch and loudness. The student will also study the theory of how sound moves. The final section of the unit will relate career information to the concepts presented in the unit.

II. Unit Content Outline:

A. A loss or gain of energy affects molecular motion
   1. Sound is caused by a vibrating object
      a. vibration is a to-and-fro movement
      b. where there is sound, there is motion
   2. The pitch of a sound depends on the rate of the vibration
      a. a change in the rate of vibration changes the pitch --the rate of vibration can be changed in different ways
   3. Sound travels in waves, by molecular motion
      a. waves transmit energy in all directions
      b. sound travels by the motion of molecules
   4. The molecular theory explains the behavior of sound in a solid and a gas
      a. matter is molecular in nature
      b. sound travels better in a solid than in a gas
   5. An echo is caused by the bounce of sound
      a. sound travels approximately 1,100 feet per second in air
      b. sound can be absorbed
   6. Many occupations are related to sound
      a. Music related occupations are numerous
      b. Engineering of buildings is related to acoustics
      c. the broadcast industry

III. Unit Objectives: At the completion of the unit "The Bounce of Sound" the student will be able to:

1. demonstrate that sound is caused by a vibrating object
2. illustrate that a vibration is a to-and-fro movement
3. show how the pitch of a sound depends on the rate of vibration
4. explain how the rate of vibration can be changed
5. explain that sound travels in waves by molecules
6. cite examples to prove that sound travels better through some solids than in air
7. explain that an echo is caused by sound bouncing back to the source
8. list several occupations and explain how they are related to sound

IV. Unit Description:

A. Criterion-Referenced Objective:
1. Given a list of ten occupations, the student will be able to select five and explain how the occupation is related to sound.

B. Learning Activities:
1. Research - the students will be asked to talk to their parents to find out if sound is important in their jobs -- this will be discussed in class.
2. Bulletin Board - the students will be asked to bring in pictures of people at work using sound. Title: "Did You Hear That?"
3. Film - The World of Sound, the story of sound and its affect on man and animals.
4. Speaker - Rep. from Bell Telephone will explain how a phone works and tell of the jobs involved in telephone work.

C. Materials:
1. pictures of people at work (supplied by students)
2. film: The World of Sound - available from the:

Italian Culture Institute
Audio Visual Dept.
686 Park Avenue
New York, NY 10021

D. Evaluation:
1. One item from the final test.
A. Below is a list of jobs which have something to do with sound. Select five occupations and tell why sound is important.
1. fireman
2. telephone operator
3. symphony conductor
4. auto mechanic
5. doctor
6. music instructor
7. teacher
8. rock and roll band
9. disc jockey
10. sailor

Unit Title: CAREERS IN MARINE OCCUPATIONS

I. Unit Overview: The purpose of this career unit is to provide pupils with an awareness of career possibilities in marine occupations. Careers in the fishing industry, shipping industry, armed forces, construction, recreation, and oceanography will be described and individually investigated. The idea of how an A person fulfills requirements of a career will be developed.

II. Unit Content Outline:

A. Description of marine careers
   1. fishing
   2. shipping
   3. armed forces
   4. construction
   5. recreation
   6. oceanography
B. Individual investigation of specific careers
C. Recognition of need for basic skills in careers
D. Illustration of technology creating or eliminating work
E. Recognition of significance of marine occupations
F. Recognition of interdependence of marine occupations
G. Identification of rewards of marine occupations
H. Recognition of the effect of personality and attitude on job performance
I. Classification of marine goods and services
J. Description of how an A person fulfills requirements for career success.

III. Unit Objectives: Student will be able to:

1. List several marine occupations,
2. Describe one chosen career,
3. Recognize the importance of the acquisition of basic skills for marine careers,
4. Illustrate an example of technology creating or eliminating work,
5. Recognize the significance and worth of all marine occupations,
6. Identify the rewards of marine occupations,
7. Recognize the interdependence of sea and land industries.
8. Recognize the effectof personality and attitude of job performance,
9. Classify marine occupations, as to whether they involve the production of goods or the performation of services,
10. Recognize how an A person fulfills requirements of a specific careers.

IV. Unit Description:

A. Criterion-Referenced Objectives:

1. The pupils will be able to list at least 7 marine occupations without reference to any sources of information.

B. Learning Activities:

1. Prepare a bulletin board or set up a book corner to stimulate interest,
2. Discuss the meanings of "marine" and "occupations" with pupils.
3. Discuss with class: "In expanding the world of work, we are going to take a look at marine occupations. Careers involved with the sea may be sought in the shipping industry, the fishing industry, the armed forces, construction companies, recreation, and the field of oceanography. Can you name any careers which would fit under these headings?" Develop a list such as this with class:

SHIPPING	FISHING	CONSTRUCTION
captain	captain	designer
engineer	mate	welder
navigator	net maker	plumber
deck hand	processor	carpenter
radio man	bait seller	ship salesman
ARMED FORCES	**OCEANOGRAPHY**	**RECREATION**
weatherman	diving	life guard
captain	mineral exploration	rescue boat crewman
seaman	work with underwater habitats	coast guardsman
communications officer		
submarine crewman		

4. In order to add to the above list, show these filmstrips to the class.
   a. "The Fishing Industry"
   b. "Commercial Fishing"
   c. "The Oceans
   d. "Work of the Sea"
   e. "Marine Sardines

   NOTE: These filmstrips do not bring out the names of specific jobs. The teacher must ask questions in order for pupils to make influences as to specific marine jobs necessary for performing tasks or finding out information.

   Examples of questions:
   1. How do fisherman get nets? (net maker)
   2. How do we know how sand bars form? (oceanographers)

3. How do we know that much of our rain water comes from the ocean? (meteorologists and oceanographers)
4. What job is necessary in order for a person in Kansas to get Marine sardines. (fish canner)
5. Who helps a fisherman when his boat is sinking? (Coast Guard)
6. Who protects the seas for fisherman? (Navy)
7. Who builds fishing boats for fishermen? (Navy)

5. After completing chart of Marine occupations, have several pupils reproduce it on a large sheet of paper for room display.

C. Materials:

1. Filmstrips as listed above.
2. Possible films for this activity are:
   a. "Ship Explorer Oceanographic Cruise 1960" 27 min./color
   b. "To Help Man Find His Way" 30 min./color
   c. "Tsunaoni" 28 min./color
   d. "Tides and Currents" 18 min./color
   e. "Shrimp Please" 21 min./color

You may gain information concerning any of these films by writing to:

Motion Picture Service
Department of Commerce - NOAA
12231 Wilkins Avenue
Rockville, Maryland 20852

Supplementary Activities:

1. Fish Farming
   a. Allow interested pupils to do research on aquarium.
   b. Plan materials and types of fish to be purchased.
   c. Purchase materials (raise money through class donations).
   d. Have committee to care for fish.
   e. Attempt to breed fish.
   f. Keep records of successes or failures.
   g. Which fish fight with each other?
2. Fish Catching
   a. Cover sides of aquarium with paper.
   b. Allow pupils to carefully trawl for fish with a standard aquarium net.
3. Graph Making
   a. Make a bar graph of leading fishing industry companies.
   b. Use World Book, Red Edition, Volume 7, page 162.
4. Graph Making
   a. Make a bar graph of leading fishing industry companies.
   b. Use World Book, Red Edition, Volume 7, page 163.
5. Map Making
   a. Draw a label of a world map showing kinds of fish catching around the world.

b. Use World Book, Red Edition, Volume 7, pages 162 and 163.

Art Activities:

1. Encourage groups of students to make a collage of their chosen marine occupations.
2. Make mobile of several marine occupations.
3. Make shadow boxes (from shoe boxes) depicting a marine occupation.
4. Allow groups of pupils to make a mural illustrating one marine occupational group.
   a. armed forces
   b. shipping
   c. fishing
   d. construction
   e. recreation
   f. oceanography

Unit Objective #2: Pupils will be able to choose and describe one marine career.

A. Criterion-Referenced Objectives: Pupils will be able to write a report describing one marine occupation, which will be at least 100 words long with less than three grammatical errors.

B. Learning Activities:

1. Present pupils with these various resources:
   a. Books (Intermediate Level)
      1. The First Book of Commercial Fishing, C.W. Harrison
      2. World Benetah the Waves by Walter Beuhr
      3. Wonders of the Deep Sea (Part IV) by Ferdinand C. Lane
      4. All About the Sea (Part III) by Ferdinand C. Lane
      5. What Does a Diver Do? by Wayne Hyde
      6. Deep Treasure by Elizabeht Olds (Oil Company)
      7. "Popeye and Marine Science Careers" (King Features Comics)
   b. Books (Primary Level)
      1. The Fisherman and His Boat by Louise and Richard Floethe
      2. Let's Find Out About the Ocean by David C. Knight
      3. True Book of Oceans by Katherine Carter
      4. Lobsterman by Dahlov Ipcar
      5. I Want to be a Ship Captain by Carla Greene
      6. I Want to be a Fisherman by Carla Greene
   c. Encyclopedias
      1. Childcraft - Volume 10 - What People Do
      2. World Book (Red Edition)
         a. Volume 4 - Coast Guard
         b. Volume 14 - Ocean Oceanography
         c. Volume 17 - Ships and Shipping

d. Volume 15 - Diving, Underwater
e. Folume 7 - Fish
f. Volume 17 - Safety Water
g. Volume 2 - Boats and Boating
h. Volume 14 - Navy, United States
i. Volume 13 - Marines

Although World Book and Childcraft are the only encyclopedias specifically mentioned, others should be consulted.

2. Say to the class: "You may choose any marine occupation and tell what a person holding that job does. These questions may help you in writing your report.
   a. What kind of day does a person holding your job have?
   b. What is a person holding your job expected to do?
   c. What tools or objects does a person holding your job use?
   d. What training does a person of your job need?
3. Pupils should share their reports with the rest of the class, in order for all pupils to become aware of job possibilities.

C. Materials:

1. Books and Encyclopedias as described above.

Supplementary Musical Activities:

To make pupils aware of career possibilities by use of a different approach, the classroom teacher may wish to enlist the aid of the music teacher in teaching these songs to the pupils:

1. "The Boatman's Dance" (p. 136)" and "We'll Rant and We'll Roar"(p. 49) from Making Your Own Music - Grade 6
2. "Erie Canal" (p. 6), "Down the Ohio" (p. 8) "Blow the Man Down" (p. 10), "Old Polina" (p. 30), "Lots o' Fish in Bonavist' Harbor" (p. 32), from Making Music Your Own - Grade 6
3. "Away from Rio! " (p. 36) and "The Sailor Firemen" (p. 37) from Making Your Own Music - Grade 4

Many of the songs are about or relate obsolete jobs. Yet they provide background information and convey the spirit of work on the sea.

Unit Objective #3: Pupils will be able to recognize the importance of basic skills acquisition for marine occupations.

A. Criterion-Referenced Objectives:

Upon being given four choices, pupils will be able to identify the correct answer to the following questions:

1. To gain success in a future job, what must you do?
   a. Relax, you'll learn everything when you grow older.

b. You must learn everything this year! Don't wait.
c. Work steadily to learn basic things now. Harder skills will be learned as you grow older.
d. Give up, since nobody can learn everything.

B. Learning Activities:

1 Read(over a period of 3 weeks) Carry On, Mr. Bowditch, by Jean Lee Latham, to the class.
2. Discussion questions:
a. Did Nat Bowditch have an easy life?
b. Did Nat learn everything all at once?
c. Did Nat ever give up all hope?
d. What obstacles did Nat meet?
e. What did Nat accomplish?
f. Did Nat try to learn skills gradually?
g. Did Nat go to college?
h. Did Nat like to learn?
3. Other books for group or individual investigation:
Robert Fulton by Marguerite Henry and Richard E. Byrd by Adele deLeeus

Unit Objective #4: Pupils will be able to give an example of technology creating or eliminating work.

A. Criterion-Referenced Objectives: Following a class discussion pupils will be able to list two jobs created and to jobs eliminated by the development of the steamboat.

B. Learning Activities:

1. Show filmstrip: The Steam Engine: From Riverboat to Iron Horse.
2. Focus upon steamboats for the following discussions:
a. What kinds of water transportation were used before the steamboat was invented?
1. sailing ships
2. canal boats
3. keelboats
b. What jobs were created by the inventor of the steamboat?
1. sail riggers
2. sail makers
3. sail menders
3. Could you name any jobs created or eliminated by the invention of the steamboat?

C. Materials:

1. Filmstrip: The Steam Engine from set Inventions and Technology that shaped America - Set I

Unit Objective #5: Pupils will be able to recognize the significance and worth of all marine occupations.

A. Criterion-Referenced Objectives:

Pupils will be able to write a paragraph giving two reasons why a certain member of a ship's crew is a worthwhile and necessary occupation. The pupil may choose from these ship occupations:

1. captain
2. engineer
3. navigator
4. radio operator
5. cook
6. janitor
7. seaman

B. Learning Activities:

1. Discuss with class the seven ship occupations listed previously. Describe some of their duties, asking pupils to contribute any knowledge they may have.
2. Set up a learning station in which pupils will be required to write perform the chosen job. Directions to pupils: Here are some jobs performed on a ship:
   a. Captain - He is in charge of all ship people and and ship activities.
   b. Engineer - He runs the engines and knows how to fix them.
   c. Navigator - He knows the sea and plans the ship's route.
   d. Radio operator - He knows how to operate and fix the radio. He lets people on land know what the ship is doing and he finds out about the weather from people from the land.
   e. Cook - He makes meals for the crew. He must know how to make balanced meals.
   f. Janitor - He makes the cabins clean and healthy.
   g. Seamen - These people must load and unload objects, mop the deck, paint the ship, and fix any damaged objects.

   Are all of these jobs important? Does a ship need somebody to perform these tasks? Choose one of the jobs above. Write a paragraph giving two reasons why the rest of the crew needs the person doing the job you chose.

Unit Objective #6: Pupils will be able to identify the rewards marine occupations.

A. Criterion-Referenced Objectives:

1. Given a list of ten occupational rewards, pupils will be able to choose five that are rewards of being a fisherman.
2. Pupils will be able to write a paragraph in which they will state three rewards of a marine occupation of their choice.

B. Learning Activity I:

1. Discuss these questions with pupils: "If you are a fisherman....

a. Do you live in a constant environment?
b. Do you live in an unpredictable environment?
c. Are you always close to home?
d. Are you often far from home?
e. Do you do the same thing everyday?
f. Do you have a chance to encounter adventure?
g. Do you work a steady eight hour day?
h. Do you work at odd times and sometimes long hours?
i. Do you have a chance to learn new ideas and skills?
j. Are you your own boss?

2. Present this list to the class. Ask them to put a check next to statements that state rewards of a fisherman's work.
   a. "Everyday, the same old thing takes place.
   b. "Everyday is different." ✓
   c. "I work within one mile of home."
   d. "I visit many different places." ✓
   e. "My job never had anything different."
   f. "My job can have many dangers and adventures." ✓
   g. "I work from 9:00 to 5:00 and then I can go home."
   h. "Some days I work sixteen hours." (this is a disadvantage)
   i. "I have many chances to learn things from people around me." ✓
   j. "I am my own boss." ✓
3. Discuss: "All marine occupations are not like that of the fisherman. Some are more glorious and adventuresome, while others are less so, but all jobs have rewards. Have you notices any disadvantages to being a fisherman?"

B. Learning Activity II:

1. Let each child choose one marine occupations on which to do research.
2. Directions to pupils:
   a. Go to the library.
   b. Look up and read about the occupation you are interested in.
   c. Ask for help in finding resource materials if you need it.
   d. Write a paragraph telling about three rewards of having the occupation you chose.

Unit Objective #7: Pupils will be able to recognize the interdependence of sea and land industries.

A. Criterion-Referenced Objective: Pupils will be able to identify four out of five land industries upon which fishermen of Nova Scotia depend.

B. Learning Activities:

1. Show filmstrip: "Fishermen of Nova Scotia" to class.
2. Ask: "What land industries do the fisherman of Nova Scotia depend upon?"
   a. forestry - lumber for their houses, docks, and boats
   b. ship builders

c. farming - milk and food
d. merchants - goods of many types
e. transportation - to bring food and supplies
f. lighthouse keeper (not an industry but still a necessary service)

3. Ask: "How do all these industries depend upon the fisherman?"
   a. supplies vitamin rich foods
   b. supplies fertilizer for farmers
   c. supplies raw materials for medicines
4. Say: "All of these 'industries' depend on each other. We call this interdependence. Can you give any other example of interdependence?

Unit Objective #8: Pupils will be able to recognize the effect of personality and attitude on job performance.

A. Criterion-Referenced Objectives: Pupil will be able to write an acceptable response to the question, "What will be the effect on productivity with this attitude?" when given several types of personalities.

B. Learning Activities:

1. Set the state: "Let's imagine that we are passengers on an ocean liner?"
2. "What will happen if...
   a. the captain is grouchy and shouts unclear or often silly orders?
   b. the deck hands are nervous and afraid of being scolded?
   c. the radio operator is lazy and often 'goofs off'?
   d. the navigator is bored and cannot wait for his working day to end?
   e. the engineer tries his best to keep the engine running smoothly?
   f. the cook is calm and patient, always giving clear orders to his helpers?
   g. the cook's helper is bored, but tries to find something interesting in his work?
3. Discuss consequences of personality and attitude on job performance.
4. Discuss: If you were the owner of the ocean liner, what would you say to each of the people above?

Unit Objective #9: Pupils will be able to classify marine occupations into two groups--producers of goods and performers of services.

A. Criterion-Referenced Objectives: Given a list of marine occupations, pupils will be able to classify them as to whether they are producers of goods or performers of services, with 90% accuracy.

B. Learning Activities:

1. Discuss -- "What are goods?"

2. Discuss -- "What are services?"
3. "Let's examine this list of marine occupations:"
   a. ship's captain (ocean liner)
   b. ship's captain (freighter)
   c. ship's captain (fishing boat)
   d. cook
   e. janitor
   f. shrimp fisherman
   g. radio operator
   h. tuna fisherman
   i. sardine canner
   j. meteorologist
   k. clam digger
   l. seaman
   m. scientist
   n. lobsterman
   o. oyster raker
   p. engineer
   q. navigator
   r. oceanographer
4. "Can you classify these as to whether they are producers of goods or performers of services?"

   GOODS

   ship captain (fishing boat)
   lobsterman
   oyster raker
   clam digger
   shrimp fisherman
   tuna fisherman
   sardine canner

   SERVICES

   ship captain (ocean liner)
   ship captain (freighter)
   cook
   janitor
   seaman
   scientist
   meterologist
   engineer
   navigator
   radio operator
   oceanographer

5. "Can you think of any other occupations you can classify?"

Unit Objective #10: Pupils will be able to recognize how an "A"person fulfills requirements of a specific career.

A. Criterion-Referenced Objectives: Pupils will be able to write an essay describing how an "A"person fulfills requirements of a specific career.

B. Learning Activities:

1. Put up a bulletin board illustrating an A person. An "A"person is: awake, alive, active, alert, and anticipative of the future.
2. Discuss the meaning of these terms:
   a. Awake: Get proper rest so your mind will not be sleeping.
   b. Alive: Don't be a dead head. Try your best to do everything well.
   c. Alert: Be ready for opportunities to improve yourself.
   d. Active: Don't be lazy -- Get out and do useful things.
   e. Aware: Know about the world around you -- (Especially -- be aware of career possibilities).
   f. Anticipative of the future: Make tentative plans. Be aware of career possibilities. You can change your mind. Set up goals that can be strived for.
3. Say: "If you are going to be an"A"person, what would be a good plan for future career success?"
4. Discuss: "What can you do right now to prepare for the future?"
   a. Try to learn basic skills -- math, reading, science.
   b. Become aware of possibilities for your future.
5. Discuss: "What would you like to do in the future?"
   a. Go to college?
   b. Learn a trade?
   c. Get a job right after high school?
   d. Join the military?
6. "Whatever you plan to do, you should find out about it now!"
   a. Read books about your occupation.
   b. Write letters to companies or schools to find out what the qualifications are for your occupation.
   c. Visit places where you can witness people working in the field in which you are interested.
7. "Let's write an essay. Tell your essay how an "A" person meets the requirements of the career of his choice."

C. Evaluation:
1. Written:
   a. List 7 marine occupations
   b. Choose the best answer
      1. To prepare for success in a future job, what must you do?
         a. Relax, you'll learn everything when you grow older.

b. You must learn everything this year.
c. Work steadily; learn basic skills now. Harder skills will be learned as you grow older.
d. Give up, since nobody can learn anything.

c. Write two jobs created by the invention of the steamboat.

d. Write two jobs eliminated by the invention of the steamboat.

e. Place a check mark (✓) by statements that tell about the rewards of being a fisherman.

1. ____ "The same thing happens everyday."
2. ____ "Everyday is different."
3. ____ "I work close to home."
4. ____ "I travel far from home much of the time."
5. ____ "My job can have many dangers and adventures."
6. ____ "My job is dull."
7. ____ "I work from 9:00 to 5:00 everyday."
8. ____ "I work long, odd hours."
9. ____ "I have many chances to learn about the world around me."
10. ____ "I am often my own boss."

f. Place a check mark next to the people below that a fisherman of Nova Scotia might depend upon.

1. ____ lumberman
2. ____ ship builders
3. ____ farmers
4. ____ merchants
5. ____ transportation workers

g. Why do other people need the fisherman of Nova Scotia?

1. They supply <u>(food)</u> for other people. (one word answer)

h. Write a sentence to answer the following question: What is the effect on a ship's crew if the ship captain is a poor leader?

i. Write a sentence to answer the following question: What is the effect on a ship's crew if the ship's engineer tries his best to keep the engines running smoothly?

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APPENDIX A

UNIT AUTHOR AND SCHOOL

Unit Number	Author	School
B - 1	Kathi Price and Mary Keppler	Maclary
B - 2	Kathi Price and Mary Keppler	Maclary
B - 3	Sandra Turulski	Leasure
B - 4	Sandra Turulski	Leasure
B - 5	Sandra Turulski	Leasure
B - 6	Gary Woodford	Wilson
B - 7	Sandra Turulski	Leasure
B - 8	Helen Hylenski	McVey
B - 9	Sandra Turulski	Leasure
B - 10	Helen Hylenski	McVey
B - 11	Helen Hylenski	McVey
B - 12	Henry Moore	Brookside
B - 13	Linda Weaver	Brookside
B - 14	Maxine Shay	Brookside
C - 1	Sandra Turulski	Leasure
C - 2	Henry Rickerman	Brookside
C - 3	Ron Moody	Cobbs
C - 4	Gary Woodford	Wilson
C - 5	Gary Woodford	Wilson
C - 6	Mike Cox	Brookside